tcgacccacg cgtccgggaa catatctcaa aataataata actatttatg acaaacccac 60
agtcaatatc atactgaatg ggcaaaagct ggaagcattc taaataccaa aggacatcat 120
tagttaacaa atgctagact aactagatac caaagcttgc tctgtgaaaa atccccacat 180
aaccattgaa gtttacaaca ccctaaaccc tgccaccttg ctcccagtat cagagagccc 240
agttaaacat aactatgtag aggtattaga ctcagtttat tctagtaggc ccaacctcca 300
agaccatcgt tgaacatcag tagactggga gctgtacgtg gatgggagca gctttgccaa 360
cccctgcaaa gtgactcttg aagaagacca caaaccctgc tccagtcaac atctggaagc 420
ttgactagtc cacgcatggc tgaagcatga ggaaactcat cacaggactc attttcctta 480
aaatttagac ttgtacagta aagacttcaa cttgaccttc ctcagactga gggctgttcc 540
cagagtatac atcaagtcac tgaggtagga caaaaggttg ctacagtcct attattttac 600
agttattata agtgtactgg aactctaaaa agaacttgtt tttataatgt tattctatac 660
aattatttat aatacaatat acaaataatg tatttagccc aggaaatgac caacctgatg 720
tgtgttatga cccatctgag cctcccatga ccacagtttt taaaataaga ttaagaactg 780
aagactggtg ggggctcata aacaatatga gtaaagtgtt agccaaaata aaacaaaaaa 840
aaaagggcgg cc 852

FIG. 1A

tcgacccacg cgtccgggca tggccaggcc ggctgggctg cagagcgccg gcacgggtcc 60
acgcctcggg tgacgggctt ccaggatgtt cgggcgcggg gcggcccatc cgcatccccc 120
aacacccccа cctccggcct gagcctccca gcgccggggg aaccacctcc tgtccgctgt 180
tgctggcccg catcctagca gcggcctgac gccctcccca ccctggcatg ccccccttgac 240
ctgggacgat gagcatacga ctggggagcc cagtggaggc gccctcccga agcgccactg 300
cccatgctga ccacccagcc ctccggctgc tgatgtcatg agtaacacca ctgtgcccaa 360
tgcccccccag gccaacagcg actccatggt gggctatgtg ttggggccct tcttcctcat 420
caccctggtc ggggtggtgg tggctgtggt aatgtatgta cagaagaaaa agcgggtgga 480
ccggctgcgc catcacctgc tccccatgta cagctatgac ccagctgagg aactgcatga 540
ggctgagcag gagctgctct ctgacatggg agaccccaag gtggtacatg gctggcagag 600
tggctaccag cacaagcgga tgccactgct ggatgtcaag acgtgacctg acccccttgc 660
cccaccctc agagcctggg gtcctggact gcctggggcc ctgccatctg cttcccctgc 720
tgtcacctgg ctcccccctgc tgggtgctgg gtctccattt ctccctccac ccaccctcag 780
cagcatctgc ttcccatgcc ctcaccatca cctcactgcc cccaggcctt ctgcccttg 840
tgggtgttga gctcaccgcc cacccacagg cactcatagg aagaggcttt ccttctggga 900
tggcggcggc tggtagacac ctttgctttc tctagccctc ctgggctggg cttgggccca 960
aatccccagg caggctttgg agttgtttcc atggtgatgg ggccagatgt atagtattca 1020
gtatatattt tgtaaataaa atgttttgtg gctaaaaaaa aaaaaaaaaa aaaaaaaaaa 1080
aaaaaaaagg gcggcc 1096

FIG. 1B

```
tcgacccacg cgtccgtctt attccaaaat gttgagatac tggggagaga taccaatatc   60
atcaagccag accaacagaa gttccttcga tttgctccca cgggagttcc gtctggtgga  120
agtccatgac ccacccctgc accaaccctc agccaacaag ccgaagcccc ccactatgct  180
ggacatcccc tcagagccat gtagtctcac catccatacg attcagttga ttcagcacaa  240
ccgacgtctt cgcaacctta ttgccacagc tcaggcccag aatcagcagc agacagaagg  300
tgtaaaaact gaagagagtg aacctcttcc ctcgtgccct gggtcacctc ctctccctga  360
tgacctcctg cctttagatt gtaagaatcc caatgcacca ttccagatcc ggcacagtga  420
cccagagagt gacttttatc gtgggaaagg ggaacctgtg actgaactca gctggcactc  480
ctgtcggcag ctcctctacc aggcagtggc cacaatcctg gcccacgcgg gctttgactg  540
tgctaatgag agtgtcctgg agaccctaac tgatgtggca catgagtatt gccttaagtt  600
taccaagttg ctgcgttttg ctgtggaccg ggaggcccgg ctgggacaga ctccttttcc  660
tgatgtgatg gagcaggtat tccatgaagt gggtattggc agtgtgctct ccctccagaa  720
gttctggcag caccgcatca aggactatca cagttacatg ctacagatta gtaagcaact  780
ctctgaagaa tatgaaagga ttgtcaatcc tgagaaggcc acagaggacg ctaaacctgt  840
gaagatcaag gaggaacctg tgagcgacat cacttttcct gtcagtgagg agctggaggc  900
tgaccttgct tctggagacc agtcactgcc tatgggagtg cttggggctc agagcgaacg  960
cttcccatct aacctggagg ttgaagcttc accacaggct tcaagtgcag aggtaaatgc 1020
ttctcctctt tggaatctgg cccatgtgaa aatggagcct caagaaagtg aagaaggcaa 1080
tgtctctggg catggtgtgc tgggcagtga tgtcttcgag gagcctatgt caggcatgag 1140
tgaagctggg attcctcaga gccctgatga ctcagatagc agctatggtt cccactccac 1200
tgacagcctc atggggtcct cccctgtttt caaccagcgc tgcaagaaga ggatgaggaa 1260
aatataaaag gaaaagaggg agatgttttg tccagaccta ctagacccaa cagaaaaggt 1320
tagctgacta cagcagaccc tttgcagcag tagttttaac attgacttca catattcaga 1380
agtgattcta aaggactgtg gcacatagaa atgtattttg ctgagctgta caacaggatg 1440
gcacaaaatc ctgctgatag aaataagtgt aaccggccag gcacagtggc tcatgcctgt 1500
aatcccagca ttttgggagg cccaggtggg tggatcatct gaggtcagga gttcgagacc 1560
agcctgacca acatggaaaa aaccccatct ctactaaaaa tacaaaatta gccgggtgtg 1620
gtggcacatg cctgtaatcc cagctactca ggaaggctga ggcaggagaa ctgcttgaac 1680
ctgggaggtg gaggttgtgg tgagccgaga ctccagcctg ggcaacaaga gtgaaactcc 1740
gtctcaaaaa taaataaata aataaaagaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1800
aaaaaaaaaa aaaaaaaggg cggcc                                       1825
```

FIG. 1C

```
tcgacccacg cgtccgggac aatagtgtag gttatggatg gaggtgtcgg tactaaattc   60
aataacgagt aaataatctt acttgggtag agatggcctt tgccaacaaa gtgaactgtt  120
ttggttgttt taaactcatg aagtatgggt tcagtggaaa tgtttggaac tctgaaggat  180
ttagacaagg ttttgaaaag gataatcatg ggttagaagg aagtgtttga aagtcacttt  240
gaaagttagt tttgggccag cacggtagct cacccttgta atcccagcac tttgggaggc  300
tgaggtgggt agattacttg agcccaggaa ttcaagacca gcctgggcaa catggtgaaa  360
ccctgtttct ataaaaaata atctgggctt tgtagcatat gcctgtggtc ccagctactg  420
aggaggctga ggtgggagga ttgcttgagc ccaggaggca gaggttgcag tgagccaagg  480
tcacgtcact gcactctagc ctgggcaaca gagtaagaca aaaaaaaaaa aaaagggcgg  540
cc                                                                542
```

FIG. 1D

```
tcgacccacg cgtccgcaaa acctaaatag aagttgttgt taccgtgtgc caatgtgtcc   60
catgtgggtt gtgccaggta gagaaacagg aagtcaatca tctgtgacag tctctattct  120
gtcgttttgc tccttggtat ttgatttgca ctatatttag ttgaagcctg ttcactgttt  180
aaaaccggag gtatcttcaa aggcatggag acctggttcc agtaaatgtc ccaccagtgg  240
ggtatagaaa gcatgctcat gaccctgccg tgtcgtctga ggtacccgtt cttatcctag  300
tggttcagga agagaaaacg cagtttgcac tttcaagaca gcttctctaa ggctggcatg  360
ttatctcctt gctttgcttt ttgccgtttt aaaatgtgta attgttccag cattccaatg  420
gtcttgtgca tagcagggga ctgtaaccaa aaataaacat gtatttgtgt aattggtttg  480
aagaagtctt gaatagctct ttactgtcct acttggggtt gataagattt gagtgtttgc  540
aatttttac taaatgtagc tccaaagtct taaatggctt gtttgttctt aaactgttaa  600
ttgatgaaac tgtgcataag tttacaatgt actaacttat tttgcttatt atatatagtg  660
ttttattgga aattgtaacc acacacttca gcatgatgaa aataaagatt agtgtttcca  720
tttaaataaa tgttttatcc tcccataaaa aaaaaaaaaa aaagggcggc c           771
```

FIG.1E

```
tcgacccacg cgtccgcagg cagtgactgc cctcggcttt ttttctgctg actaagatct   60
cctatagaga gctacaacaa tgcccaaaag aaagccaaag agaagatctg ccaggttgtc  120
tgctatgctt gtgccagtta caccagaggt gaagcctaaa agaacatcaa gttcaaggaa  180
aatgaagaca aaaagtgata tgatggaaga aaacatagat acaagtgccc aagcagttgc  240
tgaaaccaag caagaagcag ttgttgaaga agactacaat gaaaatgcta aaaatggaga  300
agccaaaatt acagaggcac cagcttctga aaaagaaatt gtggaagtaa aagaagaaaa  360
tattgaagat gccacagaaa agggaggaga aaagaaagaa gcagtggcag cagaagtaaa  420
aaatgaagaa gaagatcaga aagaagatga agaagatcaa aacgaagaga aaggggaagc  480
tggaaaagaa gacaaagatg aaaaagggga agaagatgga aaagaggata aaaatggaaa  540
tgagaaagga gaagatgcaa aagagaaaga agatggaaaa aaaggtgaag acggaaaagg  600
aaatggagaa gatggaaaag agaaaggaga agatgaaaaa gaggaagaag acagaaaaga  660
aacaggagtt ggaaaagaga atgaggatgg aaaagagaag ggagataaaa aagaggggaa  720
agatgtaaaa gtcaaagaag atgaaaaaga gagagaagat ggaaaagaag atgaaggtgg  780
aaatgaggaa gaagctggaa aagagaaaga agatttaaaa gaagaggaag aaggaaaaga  840
ggaagatgag atcaaagaag atgatggaaa aaaagaggag ccacagagta ttgtttaaaa  900
ctgccctatg tagtttcata atttggtaac atgtaccttc atgttgtaaa gttaatagag  960
ataaatattt ttatcaaaaa ttttataaac acagcctttc tttagcattg atttaatttc 1020
agaacatctt catattgatt attagccata aagtttctaa catgaaacat ttatctataa 1080
attttgtgat tatagtagtg gaatacatag aaaaaaatat gctttcaact ttgtgagtga 1140
atttcgtgtt gtgtaagtta tatgtcaaat ctttgaattt taattttact ccttttatac 1200
atgtgataat ttcataaagt gagggatccc aaaaaaagag tttcatccca acattcttgt 1260
tctgcaggtt gcttttataa agaaggtgaa ctattttcat gtaatgttaa gagttaaact 1320
tatctttccc aaatataact ttattattag cttgggaaaa atgaaattgt attcccattt 1380
ttaaaataaa tacaaatgtt tatttcagaa gggcagtttt gattatatgt gaatacacaa 1440
attttactgg atttatctta ataaaaagac tctgacgatg attgtgtttt gttatatctt 1500
caaaaatata gctagtgaaa tattgtgctt aatttttttc tattgtgtta ttcatgaaaa 1560
tatttaatat tcactgacat aaaattaata taaagtaaaa ttcaccattt taattataat 1620
aaaaataaag tatataattc aaaaaaaaaa aaaaaaaaaa agggcggcc            1669
```

FIG.1F

```
tcgacccacg cgtccgtgat aaataactta taggtgatag tgataattcc tgattccaag    60
aatgccatct gataaaaaag aatagaaatg gaaagtggga ctgagaggga gtcagcaggc   120
atgctgcggt ggcggtcact ccctctgcca ctatccccag ggaaggaaag gctccgccat   180
ttgggaaagt ggtttctacg tcactggaca ccggttctga gcattagttt gagaactcgt   240
tcccgaatgt gctttcctcc ctctcccctg cccacctcaa gtttaataaa taaggttgta   300
cttttcttac tataaaataa atgtctgtaa ctgctgtgca ctgctgtaaa cttgttagag   360
aaaaaaataa cctgcatgtg ggctcctcag ttattgagtt tttgtgatcc tatctcagtc   420
tgggggggaa cattctcaag aggtgaaata caagaaagcc tttttttctt ggatcttttc   480
ccgagattca aatctccgat ttcccatttg ggggcaagtt tttttcttca ccttcaatat   540
gagaattcag cgaacttgaa agaaaaatca tctgtgagtt ccttcaggtt ctcactcata   600
gtcatgatcc ttcagaggga atatgcactg gcgagtttaa agtaagggct atgatatttg   660
atggtcccaa agtacggcag ctgcaaaaag tagtggaagg aaattgtcta cgtgtcttgg   720
aaaaattagt taggaatttg gatgggtaaa aggtaccctt gccttactcc atcttatttt   780
cttagccccc tttgagtgtt ttaactggtt tcatgtccta gtaggaagtg cattctccat   840
cctcatcctc tgccctccca ggaagtcagt gattgtcttt ttgggcttcc cctccaaagg   900
accttctgca gtggaagtgc cacatccagt tcttttcttt tgttgctgct gtgtttagat   960
aattgaagag atctttgtgc cacacaggat ttttttttt ttttaagaaa aacctataga  1020
tgaaaaatta ctaatgaaac tgtgtgtacg tgtctgtgcg tgcaacataa aaatacagta  1080
gcacctaagg agcttgaatc ttggttcctg taaaatttca aattgatgtg gtattaataa  1140
aaaaaaaaaa aacccaaaaa aaaaaaaaaa aaaagggcgg cc                     1182
```

FIG.1G

```
tcgacccacg cgtccggagg agagagagtg aacagggagc ggggcttttg cctgttggtc    60
tccctggact gaagagaggg agaatagaag cccaagacta agattctcaa aatggtttat   120
tacccagaac tctttgtctg ggtcagtcaa gaaccatttc caaacaagga catggaggga   180
aggcttccta agggaagact tcctgtccca aaggaagtga accgcaagaa gaacgatgag   240
acaaacgctg cctccctgac tccactgggc agcagtgaac tccgctcccc aagaatcagt   300
tacctccact ttttttaatc gtaacacctc catttgtatt acatatggtg tatgggtatt   360
gatgaggtca tggtatcata tatgggattt ttttctgtgt aaatcatcaa gtataagaag   420
aaactatggg actctgagcc ttgctttaga gaatttacag tggacaaata ggtgtcatca   480
aaccagtttt taatcattct gactcaagtg aaaacgctca gaatttcaca ctgtgaatcc   540
cgtttacaac ccttacaggt gggccttcag gcctggttcg ctacaacaat gtcttccaca   600
actcaaactc ccaccgcgct cacacaaccg gtccactcct gccttttcac tcacacagct   660
cccgactgct tcttgcagag gctgagagtc ccccccccac ctttttttc atttagatgt    720
aacaaaccta gtagtttatg ttcatcaatt gtctgtatat ctctatattt tatccatgta   780
ctcttttgat gtatagaagt agtttgaaac tcattgtttc cttgtggtaa gtgaccgaga   840
tgctgccaca ggacctgaga cactgatgaa tggtgctatt ttggactttc aacatgctcc   900
ttggcgaggt agctctgatg gagttatttt ttatttccat gttctaagaa ggtgttggta   960
ctctgtttcc cttgaatgtt gttctctaga ctggattgac ttgttttcct tgtgtcttca  1020
gtgtggcttt cttcctcagt gttgtaggtt gagcgaatgc taccagagtg tgagagacca  1080
ttgtctcgtt ggctggcgct cacggacatg cagtcacggt agcgggagca atcacaaaac  1140
tgtaatttac ttaccaaatc tcttcctttc cgtagcctcg cctgcctgac ttagagaaag  1200
aaaagcaata attttacagg cattttgagg tgtctctttg ggttctttct gtttgaaagg  1260
atatttgtcg aaaaaaagag caaaaccgtt ttaaataaac tccccctgga aaaaaaccca  1320
aaacactggc atactgagtg ggaatatgaa aatgacacct tttccaaata ttaaattgga  1380
aaacaaggtc tacaaaatca tgatactttt ttaaaaggca gagcattctt ttttcggcaa  1440
ttttgataag caaggtgtag atttacattt ttgtccttgc tcccaacgaa atggataaac  1500
aaaaataaat taccatctac tcatggaatg ttgttgtgtt agccagtctg aaagcccacc  1560
ttaatttta tataactgtc tttagctctt cttttgacag ggcaggcctt gttctgaact  1620
gtttcgcttc tgactgttaa acaccgatga cgcatgcact gcacttcttc gttttcttct  1680
tgctccccca ttggcctgag tttcttgtgc attacgcctc tccctccttc gttagaatag  1740
gtgtatcagc tgtgtaaata gagcaagaaa acagtattct gcatctgtgg catttatgta  1800
gagttgcagt tgtgtactgc tgaaaatgca ggcttttgta acagtgtgat ctttactgat  1860
gcactcatga caagtaccca atgtatttta gctattttag tagtatttgt tcaataaata  1920
cgcaagctgt aaggtaaaaa aaaaaaaaaa aaaaaaaggg cggcc                  1965
```

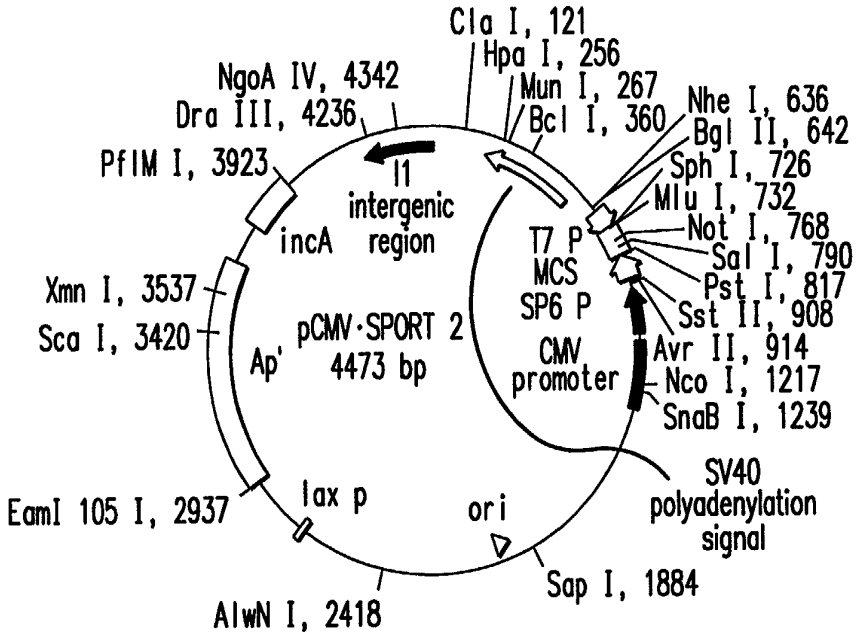
FIG. 1H

tcgacccacg cgtccgggaa cgtacgtccc agccctcttt agctacttag cgcctctggg 60
cccgagaaca cctgctcctt ggctcagtct ggcgccaccg gcatcacgga actgtacttc 120
ccagagacgt cacaccggga gacttccgat tcccgctcct gagattggac tctcacgtgc 180
aggagccagt cctcgctggg ctctagcggg cttctgatgg aggagctact cctctgggag 240
gacagaaatt agcagcagcc tctgtcacca tccaaagatt acaacccatg aaaccattga 300
gtttgtgcct tgtatcagaa agcaaaggag aatgaaaaag cacagctaac attgcttgag 360
gatctaggcg attaattctt tagactgtca tcatgggtat cccgaggact aatgagtttt 420
gtgggaagat cataagtaat gaagttcttc actgatttga agttgcgggg acacaaaaat 480
tgtcattgat ggttatgctc ttttccaccg tctttgcttc agtttcaaac ttggatctcc 540
ggtatggagg ggactatgat tcttttgcag atgttgtaca aaaattcttt gaatcactgt 600
ttgcttgtaa tatatgccca tatgttgtat tagatggagg atgtgacatt tcagataaaa 660
agcttacaac tttaaaggat agagctagag aggagatcca gatggcccat tccctttctg 720
ttggtgggag tgggtatgta tgtcccttac tcatccggga agtattcata caggttttga 780
tcaagctgcg ggtgtgtttt gtccagtgct tttcagaagc agatcgggac attatgacac 840
ttgctaacca ttggaattgc cctgtgttat catcagatag tgacttttgc atttttgacc 900
tgaaaactgg gttttgccca ttgaatagct ttcagtggag aaatatgaac actattaagg 960
gcacacaaaa ctatatccct gccaaatgct tttcccttga tgcattctgc catcacttca 1020
gcaatatgaa taaagctcta ctacctctct ttgcggtgct atgtggaaat gaccatgtta 1080
atctacccat catggagaca ttcttaagta aagcgcgtct tcctcttgga gctaccagtt 1140
ctaaagggag gagacaccac cgaatcctgg gacttctgaa ttggttgtct cattttgcca 1200
accctaccga agcactagat aatgttctga aatacctccc aaaaaaggat cgagaaaatg 1260
ttaaggaact tctctgctgt tccatggaag aataccaaca gtcccaggtg aagctacagg 1320
acttcttcca gtgtggtact tatgtctgtc cagatgcctt gaatcttggt ttaccagaat 1380
gggtattagt ggctttagct aaaggccagc tatctccttt catcagtgat gctttggtcc 1440
taagacggac cattcttccc acacaggtgg aaaacatgca gcaaccaaat gcccacagaa 1500
tatctcagcc catcaggcaa atcatctatg ggcttctttt aaatgcctca ccacatctgg 1560
acaagacatc ctggaatgca ttgcctcctc agcctctagc tttcagtgaa gtggaaagga 1620
ttaataaaaa tatcagaacc tcaatcattg atgcagtaga actggccaag gatcattctg 1680
acttaagcag attgactgag ctctccttga ggaggcggca gatgcttctg ttagaaaccc 1740
tgaaggtgaa acagaccatt ctggagccaa tccctacttc actgaagttg cccattgctg 1800
tcagttgcta ctggttgcag cacaccgaga ccaaagcaaa gctacatcat ctacaatcct 1860
tactgctcac aatgctagtg gggcccttga ttgccataat caacagccct ggaaatgtgg 1920
accctgtacc caggcaggct cagtgtcttg ctcctcgcta gttggtaaaa ggtaaggaag 1980
agctgcagga agatggtgct aagatgttgt atgcagagtt ccaaagagtg aaggcgcaga 2040
cacggctggg cacaagactg gacttagaca cagctcacat cttctgtcag tggcagtcct 2100
gtctccagat ggggatgtat ctcaaccagc tgctgtccac tcctctccca gagccagacc 2160
taactcgact gtacagtgga agcctggtgc acggactatg ccagcaactg ctagcatcga 2220
cctctgtaga aagtgtcctg agcatatgtc ctgaggctaa gcaactttat gaatatctat 2280
tcaatgccca caaggtcata tgcccccgct gaaatattcc taccaaaagg tagatcaaat 2340
tcaaaaaaaa aaaggcagaa gaaacagaat accagctgtt ctaagaacag agggagaacc 2400
actgcacaca ccaagtgttg gtatgaggga aacaaccggt ttgggttgtt aatggttgaa 2460
aacttagagg aacatagtga ggcctccaac attgaataaa actcagtttg catcaaacta 2520
gatgtattta atataatcct tacttaaaat tcttccgtta ccacccttga aacaattagc 2580
tttttcttta ggactgacct gttaggggat aaacatcaca ataatctgaa ttccaagtta 2640
ttttgtattt tgtttttaat aaatacaacc tgatttaaga aaaaaaaaaa aaaagggcgg 2700
cc 2702

FIG. 1I

```
tcgacccacg cgtccgcctg ccagcggacg acgtggtcag catcatcgag gaggtggagg    60
agaagcggaa gcggaagaag aacgcccctc ccgagcccgt gccgcccccc cgtgccgccc   120
ccgcccccac ccacgtccgc tccccgcagc ccccgccccc cgcccccgct cccgcacgag   180
acgagctgcc ggactggaac gaggtgctcc cgccctggga tcgggaggag gacgaggtgt   240
acccgccagg gccgtaccac cctttcccca actacatccg gccgcggaca ctgcagccgc   300
cctcggcctt gcgccgccgc cactaccacc acgccttgcc gccttcgcgc cactatcccg   360
gccgggaggc ccaggcgcgg cgcgcgcagg aggaggcgga ggcggaggag cgccggctgc   420
aggagcagga ggagctggag aattacatcg agcacgtgct gctccggcgc ccgtgactgc   480
ccttcccgta accgcccccg cgcgcccccg ccgcgcgcgc gcgccggcgc ccccctccgt   540
gttgcccgct ccccctcggt gtttgcatgc gccccggccc tgccccttgg ccctgccccc   600
gtccccgggc tgcgtcggga cctgccagac ccccctcccg ggtcctgagc ccgaactccc   660
agagctcacc cgcgggtgac cgggggccag cccaggaggg cgggtggttt gtgcgagttc   720
ccttgccacg cggggccccg gccccatcaa gtccctctgg ggacgtcccc gtcggaaacc   780
ggaaaaagca gttccagtta attgtgtgaa gtgtgtctgt ctccagccct tcgggcctcc   840
cacgagcccc tccagcctct ccaagtcgct gtgaattgac cccttctttc ctttctctgt   900
tgtaaatacc cctcacggag gaaatagttt tgctaagaaa taaaagtgac tattttaaaa   960
aaaaaaaaaa agggcggcc                                               979
```

FIG. 1J



Multiple Cloning Site (MCS) of Plasmid pCMV*SPORT 2 after Cloning of a cDNA Insert

636

Forward sequencing primer — T7 promoter

CTAGCAGATC TCCCAGTCAC GACGTTGTAA AACGACGGCC AGTGCCTAGC TTATAATACG ACTCACTATA GGGAGAGAGC

Sph I Mlu I Hind III Apa I Xho I BamH I Xba I Not I — Mlu 1*

TATGACGTCG CATGCACGCG TAAGCTTGGG CCCCTCGAGG GATCCTCTAG AGCGGCCGC [cDNA Insert] CGGACGCGTG

Sal I Smi I EcoR I Rsr II Kpn I Pst I — Sp6 promoter

GGTCGACCCG GGAATTCCGG ACCGGTACCT GCAGGCGTAC CTTCTATAGT GTCACCTAAA TAGCTTTTTG CAAAAGCCTA

Reverse sequencing primer

GTGGTCATAG CTGTTTCCTG TGTGAAATTG TTATCCGCTC CGCGGCCTAG GCTAGAGTCC [CMV PROMOTER]

*This Mlu I restriction site contained within the Sal I adapter is introduced into the pCMV*SPORT 2 vector upon ligation of the cDNA insert. Due to flanking sites, Mlu I, by itself, or the combined Not I–Sal I digestion can be used to completely excise the cDNA insert.

FIG.2

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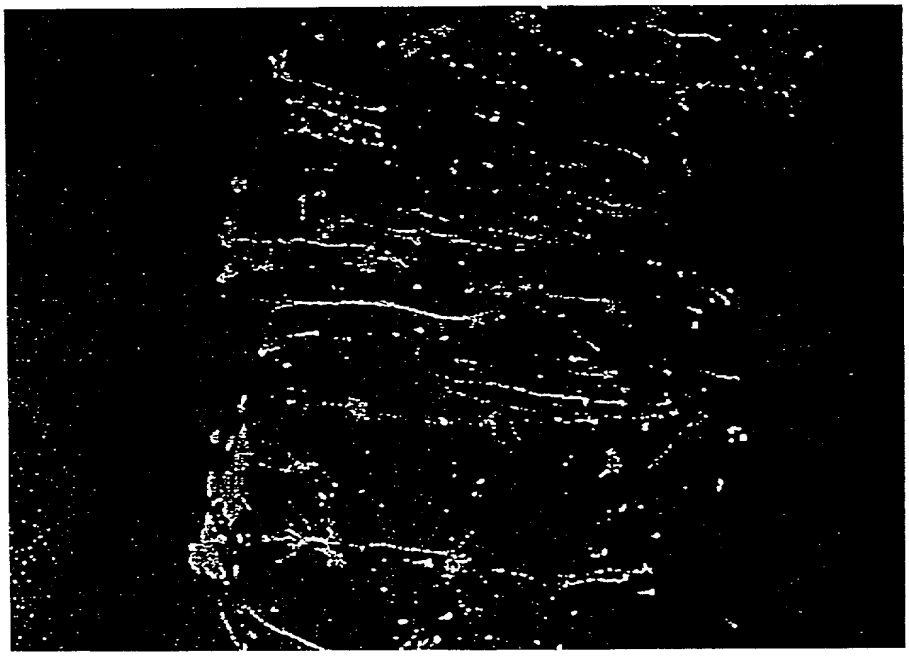

FIG.3A

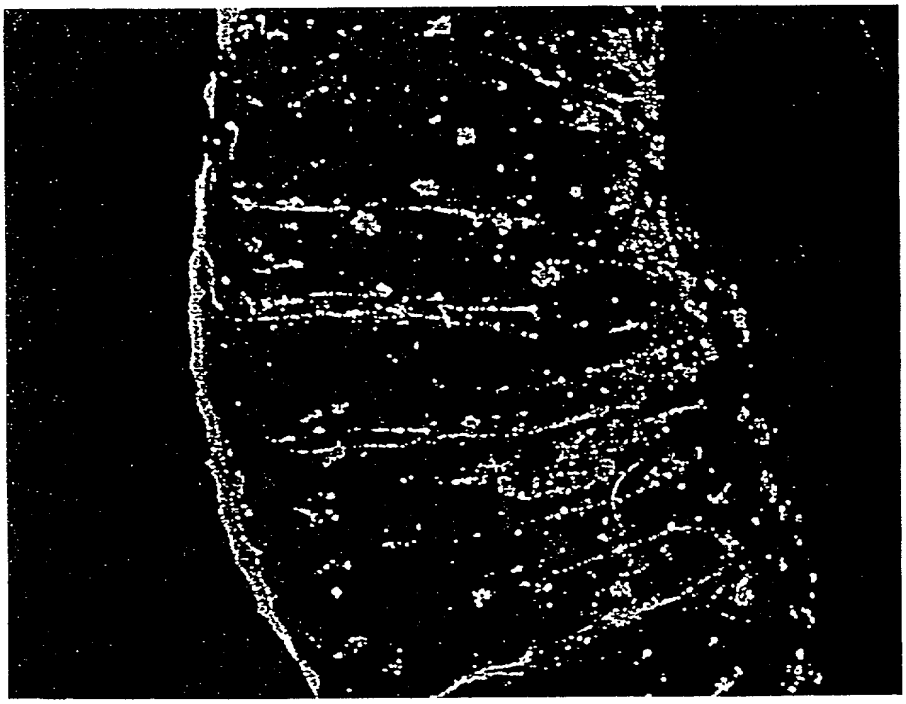

FIG.3B

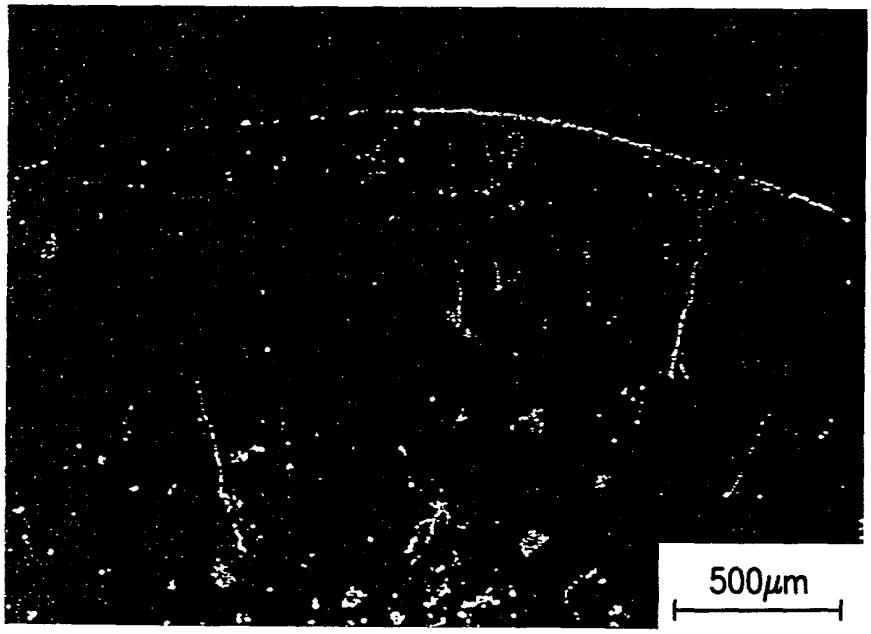

FIG.3C

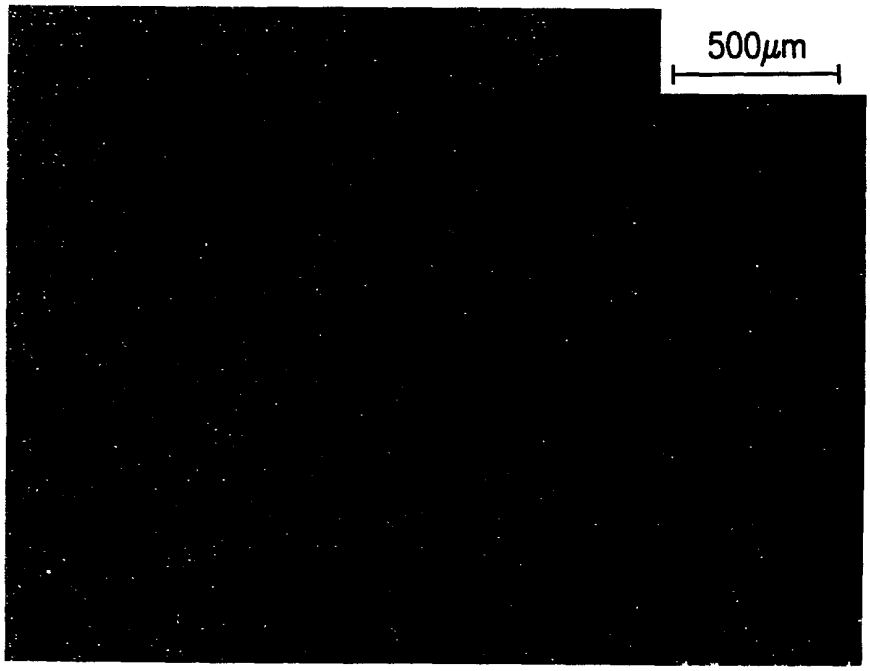

FIG.3D

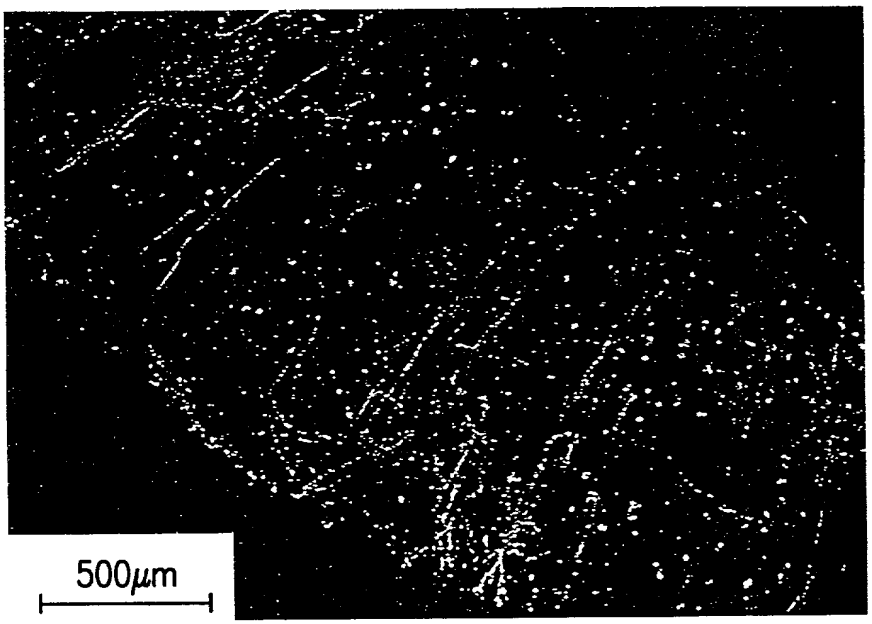

FIG.3E

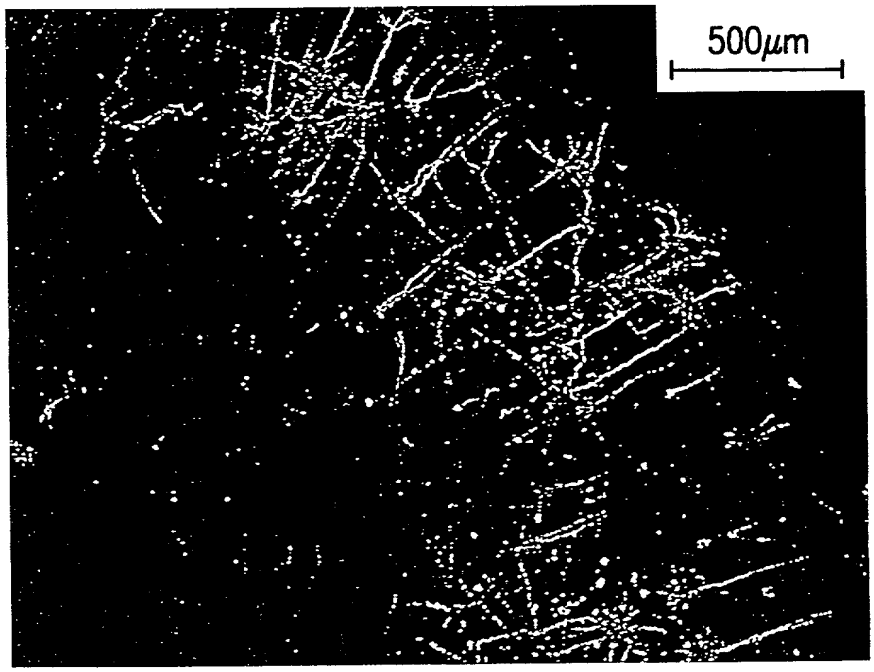

FIG.3F

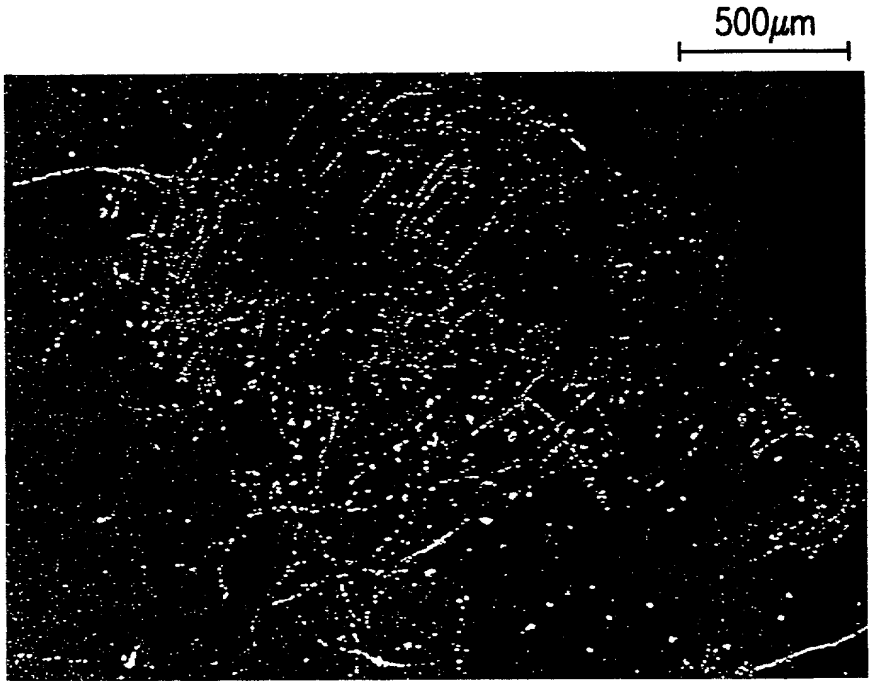

FIG.3G

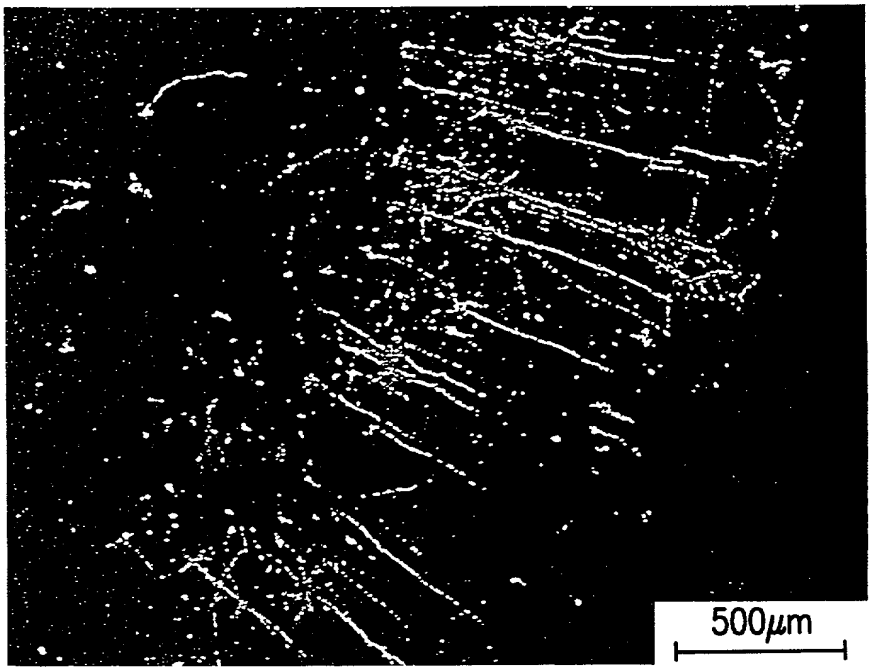

FIG.3H

FIG.3I

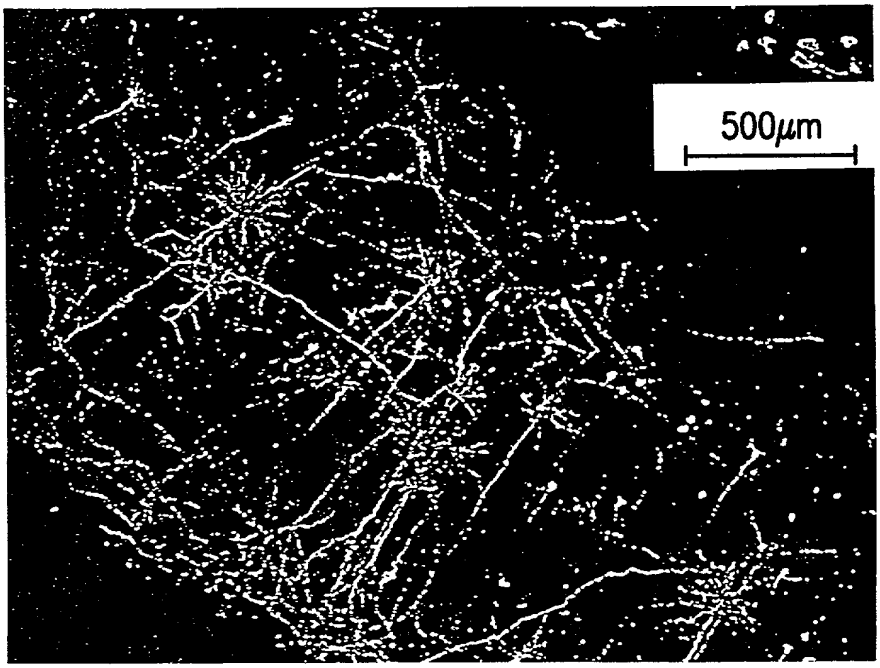

FIG.3J

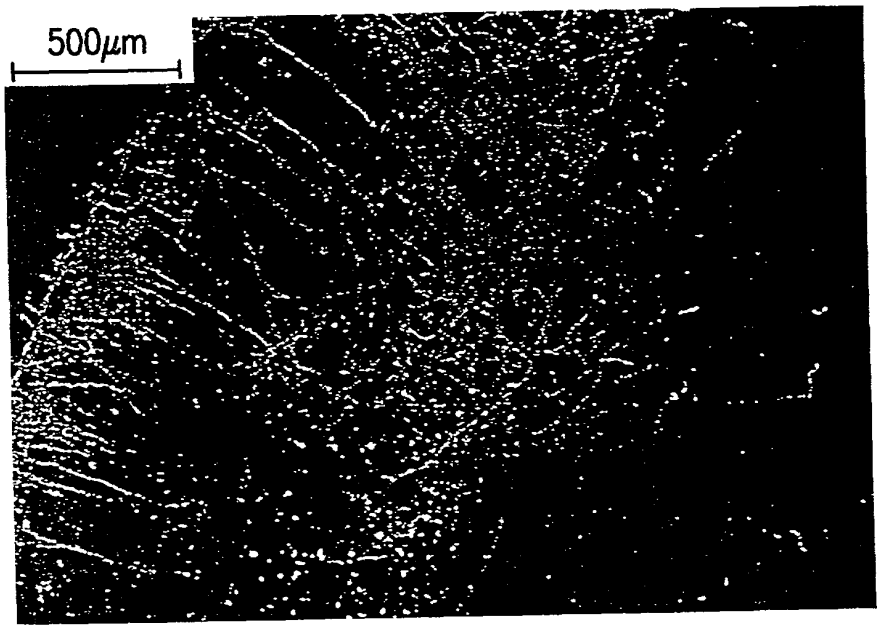

FIG.3K

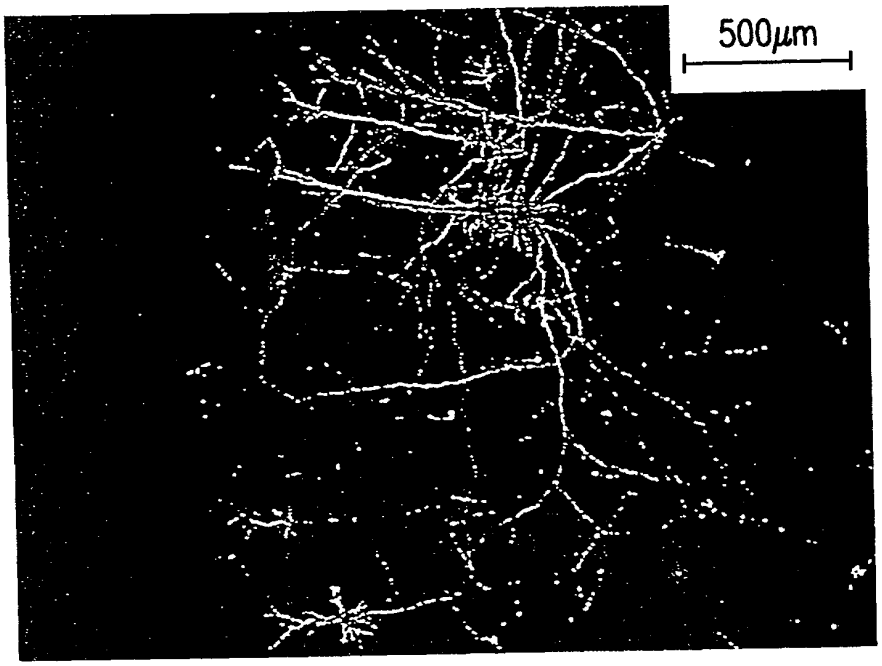

FIG.3L

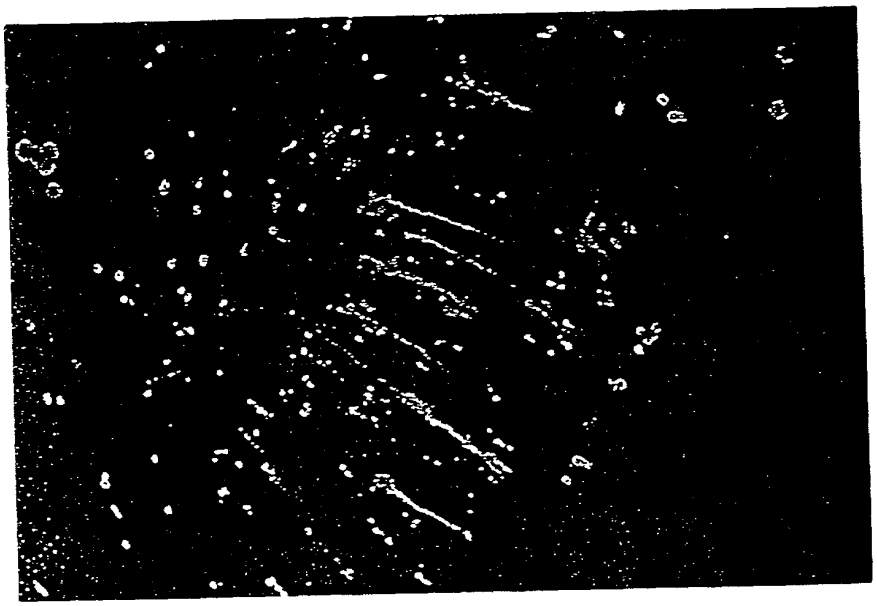

FIG.3M

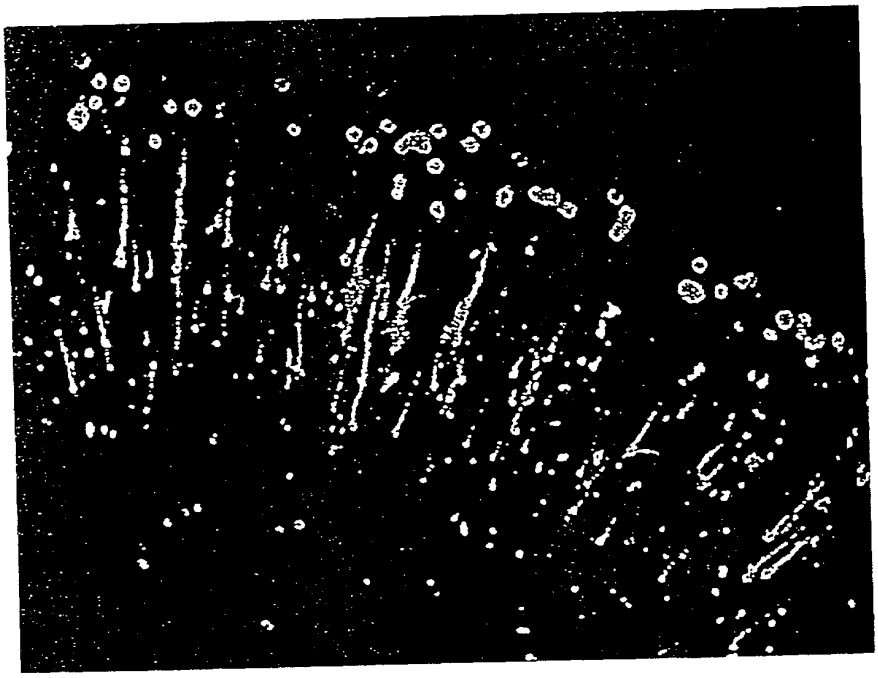

FIG.3N

```
atgacaaacc cacagtcaat atcatactga                                    30

Met Thr Asn Pro Gln Ser Ile Ser Tyr
 1               5
```

FIG.4A

```
atgggcaaaa gctggaagca ttctaaatac caaaggacat cattagttaa caaatgctag   60

Met Gly Lys Ser Trp Lys His Ser Lys Tyr Gln Arg Thr Ser Leu Val
 1               5                  10                  15
Asn Lys Cys
```

FIG.4B

```
atgctagact aa                                                       12

Met Leu Asp
 1
```

FIG.4C

```
atgggagcag ctttgccaac ccctgcaaag tga                                33

Met Gly Ala Ala Leu Pro Thr Pro Ala Lys
 1               5                  10
```

FIG.4D

```
atggctgaag catga                                                    15

Met Ala Glu Ala
 1
```

FIG.4E

```
atgaggaaac tcatcacagg actcattttc cttaaaattt ag                      42

Met Arg Lys Leu Ile Thr Gly Leu Ile Phe Leu Lys Ile
 1               5                  10
```

FIG.4F

```
atgttattct atacaattat ttataataca atatacaaat aa                    42

Met Leu Phe Tyr Thr Ile Ile Tyr Asn Thr Ile Tyr Lys
 1               5                  10
```

FIG.4G

```
atgtatttag cccaggaaat gaccaacctg atgtgtgtta tgacccatct gagcctccca  60
tga                                                                63

Met Tyr Leu Ala Gln Glu Met Thr Asn Leu Met Cys Val Met Thr His
 1               5                  10                  15
Leu Ser Leu Pro  20
```

FIG.4H

```
atgaccaacc tgatgtgtgt tatgacccat ctgagcctcc catga                  45

Met Thr Asn Leu Met Cys Val Met Thr His Leu Ser Leu Pro
 1               5                  10
```

FIG.4I

```
atgtgtgtta tgacccatct gagcctccca tga                               33

Met Cys Val Met Thr His Leu Ser Leu Pro
1               5                  10
```

FIG.4J

```
atgacccatc tgagcctccc atga
24

Met Thr His Leu Ser Leu Pro
 1               5
```

FIG.4K

```
atgaccacag tttttaaaat aagattaaga actgaagact ggtgggggct cataaacaat  60
atgagtaaag tgttagccaa aataaaacaa aaaaaaaagg gcggcc                 106

Met Thr Thr Val Phe Lys Ile Arg Leu Arg Thr Glu Asp Trp Trp Gly
 1               5                  10                  15
Leu Ile Asn Asn Met Ser Lys Val Leu Ala Lys Ile Lys Gln Lys Lys
            20                  25                  30
Lys Gly Gly

        35
```

FIG.4L

atggccaggc cggctgggct gcagagcgcc ggcacgggtc cacgcctcgg gtga 54

Met Ala Arg Pro Ala Gly Leu Gln Ser Ala Gly Thr Gly Pro Arg Leu
1 5 10 15
Gly

FIG.5A

atgttcgggc gcggggcggc ccatccgcat cccccaacac ccccacctcc ggcctga 57

Met Phe Gly Arg Gly Ala Ala His Pro His Pro Pro Thr Pro Pro Pro
1 5 10 15
Pro Ala

FIG.5B

atgccccctt ga 12

Met Pro Pro
1

FIG.5C

atgagcatac gactggggag cccagtggag gcgccctccc gaagcgccac tgcccatgct 60
gaccacccag ccctccggct gctgatgtca tga 93

Met Ser Ile Arg Leu Gly Ser Pro Val Glu Ala Pro Ser Arg Ser Ala
1 5 10 15
Thr Ala His Ala Asp His Pro Ala Leu Arg Leu Leu Met Ser
20 25 30

FIG.5D

atgctgacca cccagccctc cggctgctga 30

Met Leu Thr Thr Gln Pro Ser Gly Cys
1 5

FIG.5E

```
atgagtaaca ccactgtgcc caatgccccc caggccaaca gcgactccat ggtgggctat     60
gtgttggggc ccttcttcct catcaccctg gtcggggtgg tggtggctgt ggtaatgtat    120
gtacagaaga aaaagcgggt ggaccggctg cgccatcacc tgctccccat gtacagctat    180
gacccagctg aggaactgca tgaggctgag caggagctgc tctctgacat gggagacccc    240
aaggtggtac atggctggca gagtggctac agcacaagc ggatgccact gctggatgtc     300
aagacgtga                                                            309
```

```
Met Ser Asn Thr Thr Val Pro Asn Ala Pro Gln Ala Asn Ser Asp Ser
 1               5                  10                  15
Met Val Gly Tyr Val Leu Gly Pro Phe Phe Leu Ile Thr Leu Val Gly
            20                  25                  30
Val Val Val Ala Val Val Met Tyr Val Gln Lys Lys Lys Arg Val Asp
        35                  40                  45
Arg Leu Arg His His Leu Leu Pro Met Tyr Ser Tyr Asp Pro Ala Glu
    50                  55                  60
Glu Leu His Glu Ala Glu Gln Glu Leu Leu Ser Asp Met Gly Asp Pro
65                  70                  75                  80
Lys Val Val His Gly Trp Gln Ser Gly Tyr Gln His Lys Arg Met Pro
                85                  90                  95
Leu Leu Asp Val Lys Thr
            100
```

FIG.5F

```
atgccccca ggccaacagc gactccatgg tgggctatgt gttggggccc ttcttcctca     60
tcaccctggt cggggtggtg gtggctgtgg taa                                 93
```

```
Met Pro Pro Arg Pro Thr Ala Thr Pro Trp Trp Ala Met Cys Trp Gly
 1               5                  10                  15
Pro Ser Ser Ser Ser Pro Trp Ser Gly Trp Trp Trp Leu Trp
            20                  25                  30
```

FIG.5G

```
atggtgggct atgtgttggg gcccttcttc ctcatcaccc tggtcggggt ggtggtggct      60
gtggtaatgt atgtacagaa gaaaaagcgg gtggaccggc tgcgccatca cctgctcccc     120
atgtacagct atgacccagc tgaggaactg catgaggctg agcaggagct gctctctgac     180
atgggagacc ccaaggtggt acatggctgg cagagtggct accagcacaa gcggatgcca     240
ctgctggatg tcaagacgtg a                                               261
```

```
Met Val Gly Tyr Val Leu Gly Pro Phe Phe Leu Ile Thr Leu Val Gly
 1              5                   10                  15
Val Val Val Ala Val Val Met Tyr Val Gln Lys Lys Lys Arg Val Asp
            20                  25                  30
Arg Leu Arg His His Leu Leu Pro Met Tyr Ser Tyr Asp Pro Ala Glu
        35                  40                  45
Glu Leu His Glu Ala Glu Gln Glu Leu Leu Ser Asp Met Gly Asp Pro
    50                  55                  60
Lys Val Val His Gly Trp Gln Ser Gly Tyr Gln His Lys Arg Met Pro
65                  70                  75                  80
Leu Leu Asp Val Lys Thr
                85
```

FIG.5H

```
atgtgttggg gcccttcttc ctcatcaccc tggtcggggt ggtggtggct gtggtaa         57
```

```
Met Cys Trp Gly Pro Ser Ser Ser Ser Pro Trp Ser Gly Trp Trp Trp
 1              5                   10                  15
Leu Trp
```

FIG.5I

```
atgtatgtac agaagaaaaa gcgggtggac cggctgcgcc atcacctgct ccccatgtac      60
agctatgacc cagctgagga actgcatgag gctgagcagg agctgctctc tgacatggga     120
gaccccaagg tggtacatgg ctggcagagt ggctaccagc acaagcggat gccactgctg     180
gatgtcaaga cgtga                                                      195
```

```
Met Tyr Val Gln Lys Lys Lys Arg Val Asp Arg Leu Arg His His Leu
 1              5                   10                  15
Leu Pro Met Tyr Ser Tyr Asp Pro Ala Glu Glu Leu His Glu Ala Glu
            20                  25                  30
Gln Glu Leu Leu Ser Asp Met Gly Asp Pro Lys Val Val His Gly Trp
        35                  40                  45
Gln Ser Gly Tyr Gln His Lys Arg Met Pro Leu Leu Asp Val Lys Thr
    50                  55                  60
```

FIG.5J

```
atgtacagaa gaaaaagcgg gtggaccggc tgcgccatca cctgctcccc atgtacagct     60
atgacccagc tgaggaactg catgaggctg agcaggagct gctctctgac atgggagacc    120
ccaaggtggt acatggctgg cagagtggct accagcacaa gcggatgcca ctgctggatg    180
tcaagacgtg acctgacccc cttgccccac ccttcagagc ctggggtcct ggactgcctg    240
gggccctgcc atctgcttcc cctgctgtca cctggctccc cctgctgggt gctgggtctc    300
catttctccc tccacccacc ctcagcagca tctgcttccc atgccctcac catcacctca    360
ctgcccccag gccttctgcc ctttgtgggt gttgagctca ccgcccaccc acaggcactc    420
ataggaagag gctttccttc tgggatggcg gcggctggta gacacctttg ctttctctag    480

Met Tyr Arg Arg Lys Ser Gly Trp Thr Gly Cys Ala Ile Thr Cys Ser
 1               5                  10                  15
Pro Cys Thr Ala Met Thr Gln Leu Arg Asn Cys Met Arg Leu Ser Arg
            20                  25                  30
Ser Cys Ser Leu Thr Trp Glu Thr Pro Arg Trp Tyr Met Ala Gly Arg
        35                  40                  45
Val Ala Thr Ser Thr Ser Gly Cys His Cys Trp Met Ser Arg Arg Asp
    50                  55                  60
Leu Thr Pro Leu Pro His Pro Ser Glu Pro Gly Val Leu Asp Cys Leu
65                  70                  75                  80
Gly Pro Cys His Leu Leu Pro Leu Leu Ser Pro Gly Ser Pro Cys Trp
                85                  90                  95
Val Leu Gly Leu His Phe Ser Leu His Pro Pro Ser Ala Ala Ser Ala
            100                 105                 110
Ser His Ala Leu Thr Ile Thr Ser Leu Pro Pro Gly Leu Leu Pro Phe
        115                 120                 125
Val Gly Val Glu Leu Thr Ala His Pro Gln Ala Leu Ile Gly Arg Gly
    130                 135                 140
Phe Pro Ser Gly Met Ala Ala Ala Gly Arg His Leu Cys Phe Leu
145                 150                 155
```

FIG.5K

```
atgtacagct atgacccagc tgaggaactg catgaggctg agcaggagct gctctctgac     60
atgggagacc ccaaggtggt acatggctgg cagagtggct accagcacaa gcggatgcca    120
ctgctggatg tcaagacgtg a                                              141

Met Tyr Ser Tyr Asp Pro Ala Glu Glu Leu His Glu Ala Glu Gln Glu
 1               5                  10                  15
Leu Leu Ser Asp Met Gly Asp Pro Lys Val Val His Gly Trp Gln Ser
            20                  25                  30
Gly Tyr Gln His Lys Arg Met Pro Leu Leu Asp Val Lys Thr
        35                  40                  45
```

FIG.5L

```
atgacccagc tgaggaactg catgaggctg agcaggagct gctctctgac atgggagacc     60
ccaaggtggt acatggctgg cagagtggct accagcacaa gcggatgcca ctgctggatg    120
tcaagacgtg acctgacccc cttgccccac ccttcagagc ctggggtcct ggactgcctg    180
gggccctgcc atctgcttcc cctgctgtca cctggctccc cctgctgggt gctgggtctc    240
catttctccc tccacccacc ctcagcagca tctgcttccc atgccctcac catcacctca    300
ctgcccccag gccttctgcc ctttgtgggt gttgagctca ccgcccaccc acaggcactc    360
ataggaagag gctttccttc tgggatggcg gcggctggta gacacctttg ctttctctag    420
```

```
Met Thr Gln Leu Arg Asn Cys Met Arg Leu Ser Arg Ser Cys Ser Leu
 1               5                  10                  15
Thr Trp Glu Thr Pro Arg Trp Tyr Met Ala Gly Arg Val Ala Thr Ser
            20                  25                  30
Thr Ser Gly Cys His Cys Trp Met Ser Arg Arg Asp Leu Thr Pro Leu
        35                  40                  45
Pro His Pro Ser Glu Pro Gly Val Leu Asp Cys Leu Gly Pro Cys His
    50                  55                  60
Leu Leu Pro Leu Leu Ser Pro Gly Ser Pro Cys Trp Val Leu Gly Leu
65                  70                  75                  80
His Phe Ser Leu His Pro Pro Ser Ala Ala Ser Ala Ser His Ala Leu
                85                  90                  95
Thr Ile Thr Ser Leu Pro Pro Gly Leu Leu Pro Phe Val Gly Val Glu
            100                 105                 110
Leu Thr Ala His Pro Gln Ala Leu Ile Gly Arg Gly Phe Pro Ser Gly
        115                 120                 125
Met Ala Ala Ala Gly Arg His Leu Cys Phe Leu
    130                 135
```

FIG.5M

```
atgaggctga gcaggagctg ctctctgaca tgggagaccc caaggtggta catggctggc     60
agagtggcta ccagcacaag cggatgccac tgctggatgt caagacgtga cctgaccccc    120
ttgccccacc cttcagagcc tggggtcctg gactgcctgg ggccctgcca tctgcttccc    180
ctgctgtcac ctggctcccc ctgctgggtg ctgggtctcc atttctccct ccacccaccc    240
tcagcagcat ctgcttccca tgccctcacc atcacctcac tgcccccagg ccttctgccc    300
tttgtgggtg ttgagctcac cgcccaccca caggcactca taggaagagg ctttccttct    360
gggatggcgg cggctggtag acacctttgc tttctctag                           399
```

```
Met Arg Leu Ser Arg Ser Cys Ser Leu Thr Trp Glu Thr Pro Arg Trp
 1               5                  10                  15
Tyr Met Ala Gly Arg Val Ala Thr Ser Thr Ser Gly Cys His Cys Trp
            20                  25                  30
Met Ser Arg Arg Asp Leu Thr Pro Leu Pro His Pro Ser Glu Pro Gly
        35                  40                  45
Val Leu Asp Cys Leu Gly Pro Cys His Leu Leu Pro Leu Leu Ser Pro
    50                  55                  60
Gly Ser Pro Cys Trp Val Leu Gly Leu His Phe Ser Leu His Pro Pro
65                  70                  75                  80
Ser Ala Ala Ser Ala Ser His Ala Leu Thr Ile Thr Ser Leu Pro Pro
                85                  90                  95
Gly Leu Leu Pro Phe Val Gly Val Glu Leu Thr Ala His Pro Gln Ala
            100                 105                 110
Leu Ile Gly Arg Gly Phe Pro Ser Gly Met Ala Ala Ala Gly Arg His
        115                 120                 125
Leu Cys Phe Leu
    130
```

FIG.5N

```
atgggagacc ccaaggtggt acatggctgg cagagtggct accagcacaa gcggatgcca     60
ctgctggatg tcaagacgtg a                                              81
```

```
Met Gly Asp Pro Lys Val Val His Gly Trp Gln Ser Gly Tyr Gln His
 1               5                  10                  15
Lys Arg Met Pro Leu Leu Asp Val Lys Thr
            20                  25
```

FIG 5O

```
atggctggca gagtggctac cagcacaagc ggatgccact gctggatgtc aagacgtgac     60
ctgacccccc tgccccaccc ttcagagcct ggggtcctgg actgcctggg gccctgccat    120
ctgcttcccc tgctgtcacc tggctccccc tgctgggtgc tgggtctcca tttctccctc    180
cacccaccct cagcagcatc tgcttcccat gccctcacca tcacctcact gcccccaggc    240
cttctgccct ttgtgggtgt tgagctcacc gcccacccac aggcactcat aggaagaggc    300
tttccttctg ggatggcggc ggctggtaga caccttttgct ttctctag               348
```

```
Met Ala Gly Arg Val Ala Thr Ser Thr Ser Gly Cys His Cys Trp Met
 1               5                  10                  15
Ser Arg Arg Asp Leu Thr Pro Leu Pro His Pro Ser Glu Pro Gly Val
            20                  25                  30
Leu Asp Cys Leu Gly Pro Cys His Leu Leu Pro Leu Leu Ser Pro Gly
        35                  40                  45
Ser Pro Cys Trp Val Leu Gly Leu His Phe Ser Leu His Pro Pro Ser
    50                  55                  60
Ala Ala Ser Ala Ser His Ala Leu Thr Ile Thr Ser Leu Pro Pro Gly
65                  70                  75                  80
Leu Leu Pro Phe Val Gly Val Glu Leu Thr Ala His Pro Gln Ala Leu
                85                  90                  95
Ile Gly Arg Gly Phe Pro Ser Gly Met Ala Ala Ala Gly Arg His Leu
            100                 105                 110
Cys Phe Leu
        115
```

FIG.5P

```
atgccactgc tggatgtcaa gacgtga
27
```

```
Met Pro Leu Leu Asp Val Lys Thr
 1               5
```

FIG.5Q

```
atgtcaagac gtgacctgac ccccttgccc cacccttcag agcctggggt cctggactgc      60
ctggggccct gccatctgct tcccctgctg tcacctggct ccccctgctg ggtgctgggt     120
ctccatttct ccctccaccc accctcagca gcatctgctt cccatgccct caccatcacc     180
tcactgcccc caggccttct gcccttgtg ggtgttgagc tcaccgccca cccacaggca      240
ctcataggaa gaggctttcc ttctgggatg gcggcggctg gtagacacct ttgctttctc     300
tag                                                                   303
```

```
Met Ser Arg Arg Asp Leu Thr Pro Leu Pro His Pro Ser Glu Pro Gly
 1               5                  10                  15
Val Leu Asp Cys Leu Gly Pro Cys His Leu Leu Pro Leu Leu Ser Pro
            20                  25                  30
Gly Ser Pro Cys Trp Val Leu Gly Leu His Phe Ser Leu His Pro Pro
        35                  40                  45
Ser Ala Ala Ser Ala Ser His Ala Leu Thr Ile Thr Ser Leu Pro Pro
    50                  55                  60
Gly Leu Leu Pro Phe Val Gly Val Glu Leu Thr Ala His Pro Gln Ala
65                  70                  75                  80
Leu Ile Gly Arg Gly Phe Pro Ser Gly Met Ala Ala Ala Gly Arg His
                85                  90                  95
Leu Cys Phe Leu
            100
```

FIG.5R

```
atgccctcac catcacctca ctgcccccag gccttctgcc ctttgtgggt gttgagctca      60
ccgcccaccc acaggcactc atag                                             84
```

```
Met Pro Ser Pro Ser Pro His Cys Pro Gln Ala Phe Cys Pro Leu Trp
 1               5                  10                  15
Val Leu Ser Ser Pro Pro Thr His Arg His Ser
            20                  25
```

FIG.5S

```
atggcggcgg ctggtagaca cctttgcttt ctctag                                36
```

```
Met Ala Ala Ala Gly Arg His Leu Cys Phe Leu
 1               5                  10
```

FIG.5T

```
atggtgatgg ggccagatgt atag                                             24
```

```
Met Val Met Gly Pro Asp Val
 1               5
```

FIG.5U

18

atggggccag atgtatag

Met Gly Pro Asp Val
1 5

FIG.5V

33

atgtatagta ttcagtatat attttgtaaa taa

Met Tyr Ser Ile Gln Tyr Ile Phe Cys Lys
1 5 10

FIG.5W

15

atgttttgtg gctaa

Met Phe Cys Gly
1

FIG.5X

```
atgttgagat actggggaga gataccaata tcatcaagcc agaccaacag aagttccttc    60
gatttgctcc cacgggagtt ccgtctggtg gaagtccatg acccacccct gcaccaaccc   120
tcagccaaca agccgaagcc ccccactatg ctggacatcc cctcagagcc atgtagtctc   180
accatccata cgattcagtt gattcagcac aaccgacgtc ttcgcaacct tattgccaca   240
gctcaggccc agaatcagca gcagacagaa ggtgtaaaaa ctgaagagag tgaacctctt   300
ccctcgtgcc ctgggtcacc tcctctccct gatgacctcc tgcctttaga ttgtaagaat   360
cccaatgcac cattccagat ccggcacagt gacccagaga gtgactttta tcgtgggaaa   420
ggggaacctg tgactgaact cagctggcac tcctgtcggc agctcctcta ccaggcagtg   480
gccacaatcc tggcccacgc gggctttgac tgtgctaatg agagtgtcct ggagacccta   540
actgatgtgg cacatgagta ttgccttaag tttaccaagt tgctgcgttt tgctgtggac   600
cgggaggccc ggctgggaca gactcctttt cctgatgtga tggagcaggt attccatgaa   660
gtgggtattg gcagtgtgct ctccctccag aagttctggc agcaccgcat caaggactat   720
cacagttaca tgctacagat tagtaagcaa ctctctgaag aatatgaaag gattgtcaat   780
cctgagaagg ccacagagga cgctaaacct gtgaagatca aggaggaacc tgtgagcgac   840
atcacttttc ctgtcagtga ggagctggag gctgaccttg cttctggaga ccagtcactg   900
cctatgggag tgcttggggc tcagagcgaa cgcttcccat ctaacctgga ggttgaagct   960
tcaccacagg cttcaagtgc agaggtaaat gcttctcctc tttggaatct ggcccatgtg  1020
aaaatggagc ctcaagaaag tgaagaaggc aatgtctctg ggcatggtgt gctgggcagt  1080
gatgtcttcg aggagcctat gtcaggcatg agtgaagctg ggattcctca gagccctgat  1140
gactcagata gcagctatgg ttcccactcc actgacagcc tcatggggtc ctcccctgtt  1200
ttcaaccagc gctgcaagaa gaggatgagg aaaatataa                          1239
```

```
Met Leu Arg Tyr Trp Gly Glu Ile Pro Ile Ser Ser Ser Gln Thr Asn
 1               5                  10                  15
Arg Ser Ser Phe Asp Leu Leu Pro Arg Glu Phe Arg Leu Val Glu Val
            20                  25                  30
His Asp Pro Pro Leu His Gln Pro Ser Ala Asn Lys Pro Lys Pro Pro
        35                  40                  45
Thr Met Leu Asp Ile Pro Ser Glu Pro Cys Ser Leu Thr Ile His Thr
    50                  55                  60
Ile Gln Leu Ile Gln His Asn Arg Arg Leu Arg Asn Leu Ile Ala Thr
65                  70                  75                  80
Ala Gln Ala Gln Asn Gln Gln Gln Thr Glu Gly Val Lys Thr Glu Glu
                85                  90                  95
Ser Glu Pro Leu Pro Ser Cys Pro Gly Ser Pro Pro Leu Pro Asp Asp
            100                 105                 110
Leu Leu Pro Leu Asp Cys Lys Asn Pro Asn Ala Pro Phe Gln Ile Arg
        115                 120                 125
```

FIG.6A

```
His Ser Asp Pro Glu Ser Asp Phe Tyr Arg Gly Lys Gly Glu Pro Val
    130                 135                 140
Thr Glu Leu Ser Trp His Ser Cys Arg Gln Leu Leu Tyr Gln Ala Val
145                 150                 155                 160
Ala Thr Ile Leu Ala His Ala Gly Phe Asp Cys Ala Asn Glu Ser Val
                165                 170                 175
Leu Glu Thr Leu Thr Asp Val Ala His Glu Tyr Cys Leu Lys Phe Thr
            180                 185                 190
Lys Leu Leu Arg Phe Ala Val Asp Arg Glu Ala Arg Leu Gly Gln Thr
        195                 200                 205
Pro Phe Pro Asp Val Met Glu Gln Val Phe His Glu Val Gly Ile Gly
    210                 215                 220
Ser Val Leu Ser Leu Gln Lys Phe Trp Gln His Arg Ile Lys Asp Tyr
225                 230                 235                 240
His Ser Tyr Met Leu Gln Ile Ser Lys Gln Leu Ser Glu Glu Tyr Glu
                245                 250                 255
Arg Ile Val Asn Pro Glu Lys Ala Thr Glu Asp Ala Lys Pro Val Lys
            260                 265                 270
Ile Lys Glu Glu Pro Val Ser Asp Ile Thr Phe Pro Val Ser Glu Glu
        275                 280                 285
Leu Glu Ala Asp Leu Ala Ser Gly Asp Gln Ser Leu Pro Met Gly Val
    290                 295                 300
Leu Gly Ala Gln Ser Glu Arg Phe Pro Ser Asn Leu Glu Val Glu Ala
305                 310                 315                 320
Ser Pro Gln Ala Ser Ser Ala Glu Val Asn Ala Ser Pro Leu Trp Asn
                325                 330                 335
Leu Ala His Val Lys Met Glu Pro Gln Glu Ser Glu Glu Gly Asn Val
            340                 345                 350
Ser Gly His Gly Val Leu Gly Ser Asp Val Phe Glu Glu Pro Met Ser
        355                 360                 365
Gly Met Ser Glu Ala Gly Ile Pro Gln Ser Pro Asp Asp Ser Asp Ser
    370                 375                 380
Ser Tyr Gly Ser His Ser Thr Asp Ser Leu Met Gly Ser Ser Pro Val
385                 390                 395                 400
Phe Asn Gln Arg Cys Lys Lys Arg Met Arg Lys Ile
                405                 410
```

FIG.6A-1

```
atgacccacc cctgcaccaa ccctcagcca acaagccgaa gccccccact atgctggaca      60
tcccctcaga gccatgtagt ctcaccatcc atacgattca gttga                      105
```

```
Met Thr His Pro Cys Thr Asn Pro Gln Pro Thr Ser Arg Ser Pro Pro
 1               5                  10                  15
Leu Cys Trp Thr Ser Pro Gln Ser His Val Val Ser Pro Ser Ile Arg
            20                  25                  30
Phe Ser
```

FIG.6B

```
atgctggaca tcccctcaga gccatgtagt ctcaccatcc atacgattca gttgattcag      60
cacaaccgac gtcttcgcaa ccttattgcc acagctcagg cccagaatca gcagcagaca     120
gaaggtgtaa aaactgaaga gagtgaacct cttccctcgt gccctgggtc acctcctctc     180
cctgatgacc tcctgccttt agattgtaag aatcccaatg caccattcca gatccggcac     240
agtgacccag agagtgactt ttatcgtggg aaaggggaac ctgtgactga actcagctgg     300
cactcctgtc ggcagctcct ctaccaggca gtggccacaa tcctggccca cgcgggcttt     360
gactgtgcta atgagagtgt cctggagacc ctaactgatg tggcacatga gtattgcctt     420
aagtttacca agttgctgcg ttttgctgtg gaccgggagg cccggctggg acagactcct     480
tttcctgatg tgatggagca ggtattccat gaagtgggta ttggcagtgt gctctccctc     540
cagaagttct ggcagcaccg catcaaggac tatcacagtt acatgctaca gattagtaag     600
caactctctg aagaatatga aaggattgtc aatcctgaga aggccacaga ggacgctaaa     660
cctgtgaaga tcaaggagga acctgtgagc gacatcactt ttcctgtcag tgaggagctg     720
gaggctgacc ttgcttctgg agaccagtca ctgcctatgg gagtgcttgg ggctcagagc     780
gaacgcttcc catctaacct ggaggttgaa gcttcaccac aggcttcaag tgcagaggta     840
aatgcttctc ctctttggaa tctggcccat gtgaaaatgg agcctcaaga aagtgaagaa     900
ggcaatgtct ctgggcatgg tgtgctgggc agtgatgtct tcgaggagcc tatgtcaggc     960
atgagtgaag ctgggattcc tcagagccct gatgactcag atagcagcta tggttcccac    1020
tccactgaca gcctcatggg gtcctccccc gttttcaacc agcgctgcaa gaagaggatg    1080
aggaaaatat aa                                                        1092
```

```
Met Leu Asp Ile Pro Ser Glu Pro Cys Ser Leu Thr Ile His Thr Ile
 1               5                  10                  15
Gln Leu Ile Gln His Asn Arg Arg Leu Arg Asn Leu Ile Ala Thr Ala
            20                  25                  30
Gln Ala Gln Asn Gln Gln Gln Thr Glu Gly Val Lys Thr Glu Glu Ser
        35                  40                  45
Glu Pro Leu Pro Ser Cys Pro Gly Ser Pro Pro Leu Pro Asp Asp Leu
    50                  55                  60
Leu Pro Leu Asp Cys Lys Asn Pro Asn Ala Pro Phe Gln Ile Arg His
65                  70                  75                  80
Ser Asp Pro Glu Ser Asp Phe Tyr Arg Gly Lys Gly Glu Pro Val Thr
                85                  90                  95
Glu Leu Ser Trp His Ser Cys Arg Gln Leu Leu Tyr Gln Ala Val Ala
            100                 105                 110
Thr Ile Leu Ala His Ala Gly Phe Asp Cys Ala Asn Glu Ser Val Leu
        115                 120                 125
Glu Thr Leu Thr Asp Val Ala His Glu Tyr Cys Leu Lys Phe Thr Lys
    130                 135                 140
Leu Leu Arg Phe Ala Val Asp Arg Glu Ala Arg Leu Gly Gln Thr Pro
145                 150                 155                 160
Phe Pro Asp Val Met Glu Gln Val Phe His Glu Val Gly Ile Gly Ser
                165                 170                 175
Val Leu Ser Leu Gln Lys Phe Trp Gln His Arg Ile Lys Asp Tyr His
            180                 185                 190
Ser Tyr Met Leu Gln Ile Ser Lys Gln Leu Ser Glu Glu Tyr Glu Arg
        195                 200                 205
Ile Val Asn Pro Glu Lys Ala Thr Glu Asp Ala Lys Pro Val Lys Ile
    210                 215                 220
```

FIG.6C

Lys Glu Glu Pro Val Ser Asp Ile Thr Phe Pro Val Ser Glu Glu Leu
225 230 235 240
Glu Ala Asp Leu Ala Ser Gly Asp Gln Ser Leu Pro Met Gly Val Leu
245 250 255
Gly Ala Gln Ser Glu Arg Phe Pro Ser Asn Leu Glu Val Glu Ala Ser
260 265 270
Pro Gln Ala Ser Ser Ala Glu Val Asn Ala Ser Pro Leu Trp Asn Leu
275 280 285
Ala His Val Lys Met Glu Pro Gln Glu Ser Glu Glu Gly Asn Val Ser
290 295 300
Gly His Gly Val Leu Gly Ser Asp Val Phe Glu Glu Pro Met Ser Gly
305 310 315 320
Met Ser Glu Ala Gly Ile Pro Gln Ser Pro Asp Asp Ser Asp Ser Ser
325 330 335
Tyr Gly Ser His Ser Thr Asp Ser Leu Met Gly Ser Ser Pro Val Phe
340 345 350
Asn Gln Arg Cys Lys Lys Arg Met Arg Lys Ile
355 360

FIG.6C-1

```
atgacctcct gcctttag                                                    18

Met Thr Ser Cys Leu
 1               5
```

FIG.6D

```
atgcaccatt ccagatccgg cacagtgacc cagagagtga cttttatcgt gggaaagggg       60
aacctgtga                                                              69

Met His His Ser Arg Ser Gly Thr Val Thr Gln Arg Val Thr Phe Ile
 1               5                  10                  15
Val Gly Lys Gly Asn Leu
            20
```

FIG.6E

```
atgagagtgt cctggagacc ctaa                                             24

Met Arg Val Ser Trp Arg Pro
 1               5
```

FIG.6F

```
atgtggcaca tgagtattgc cttaagttta ccaagttgct gcgttttgct gtggaccggg       60
aggcccggct gggacagact ccttttcctg atgtga                                96

Met Trp His Met Ser Ile Ala Leu Ser Leu Pro Ser Cys Cys Val Leu
 1               5                  10                  15
Leu Trp Thr Gly Arg Pro Gly Trp Asp Arg Leu Leu Phe Leu Met
            20                  25                  30
```

FIG.6G

```
atgagtattg ccttaagttt accaagttgc tgcgttttgc tgtggaccgg gaggcccggc       60
tgggacagac tccttttcct gatgtga                                          87

Met Ser Ile Ala Leu Ser Leu Pro Ser Cys Cys Val Leu Leu Trp Thr
 1               5                  10                  15
Gly Arg Pro Gly Trp Asp Arg Leu Leu Phe Leu Met
            20                  25
```

FIG.6H

```
atggagcagg tattccatga agtgggtatt ggcagtgtgc tctccctcca gaagttctgg      60
cagcaccgca tcaaggacta tcacagttac atgctacaga ttagtaagca actctctgaa     120
gaatatgaaa ggattgtcaa tcctgagaag gccacagagg acgctaaacc tgtgaagatc     180
aaggaggaac ctgtgagcga catcactttt cctgtcagtg aggagctgga ggctgacctt     240
gcttctggag accagtcact gcctatggga gtgcttgggg ctcagagcga acgcttccca     300
tctaacctgg aggttgaagc ttcaccacag gcttcaagtg cagaggtaaa tgcttctcct     360
ctttggaatc tggcccatgt gaaaatggag cctcaagaaa gtgaagaagg caatgtctct     420
gggcatggtg tgctgggcag tgatgtcttc gaggagccta tgtcaggcat gagtgaagct     480
gggattcctc agagccctga tgactcagat agcagctatg gttcccactc cactgacagc     540
ctcatggggt cctcccctgt tttcaaccag cgctgcaaga agaggatgag gaaaatataa     600
```

```
Met Glu Gln Val Phe His Glu Val Gly Ile Gly Ser Val Leu Ser Leu
 1               5                  10                  15
Gln Lys Phe Trp Gln His Arg Ile Lys Asp Tyr His Ser Tyr Met Leu
            20                  25                  30
Gln Ile Ser Lys Gln Leu Ser Glu Glu Tyr Glu Arg Ile Val Asn Pro
        35                  40                  45
Glu Lys Ala Thr Glu Asp Ala Lys Pro Val Lys Ile Lys Glu Glu Pro
    50                  55                  60
Val Ser Asp Ile Thr Phe Pro Val Ser Glu Glu Leu Glu Ala Asp Leu
65                  70                  75                  80
Ala Ser Gly Asp Gln Ser Leu Pro Met Gly Val Leu Gly Ala Gln Ser
                85                  90                  95
Glu Arg Phe Pro Ser Asn Leu Glu Val Glu Ala Ser Pro Gln Ala Ser
            100                 105                 110
Ser Ala Glu Val Asn Ala Ser Pro Leu Trp Asn Leu Ala His Val Lys
        115                 120                 125
Met Glu Pro Gln Glu Ser Glu Glu Gly Asn Val Ser Gly His Gly Val
    130                 135                 140

Leu Gly Ser Asp Val Phe Glu Glu Pro Met Ser Gly Met Ser Glu Ala
145                 150                 155                 160
Gly Ile Pro Gln Ser Pro Asp Asp Ser Asp Ser Ser Tyr Gly Ser His
                165                 170                 175
Ser Thr Asp Ser Leu Met Gly Ser Ser Pro Val Phe Asn Gln Arg Cys
            180                 185                 190
Lys Lys Arg Met Arg Lys Ile
        195
```

FIG 6I

```
atgaagtggg tattggcagt gtgctctccc tccagaagtt ctggcagcac cgcatcaagg      60
actatcacag ttacatgcta cagattagta agcaactctc tgaagaatat gaaaggattg     120
tcaatcctga gaaggccaca gaggacgcta aacctgtga                            159


Met Lys Trp Val Leu Ala Val Cys Ser Pro Ser Arg Ser Ser Gly Ser
 1               5                  10                  15
Thr Ala Ser Arg Thr Ile Thr Val Thr Cys Tyr Arg Leu Val Ser Asn
            20                  25                  30
Ser Leu Lys Asn Met Lys Gly Leu Ser Ile Leu Arg Arg Pro Gln Arg
        35                  40                  45
Thr Leu Asn Leu
    50
```

FIG.6J

```
atgctacaga ttagtaagca actctctgaa gaatatgaaa ggattgtcaa tcctgagaag      60
gccacagagg acgctaaacc tgtgaagatc aaggaggaac ctgtgagcga catcactttt     120
cctgtcagtg aggagctgga ggctgacctt gcttctggag accagtcact gcctatggga     180
gtgcttgggg ctcagagcga acgcttccca tctaacctgg aggttgaagc ttcaccacag     240
gcttcaagtg cagaggtaaa tgcttctcct ctttggaatc tggcccatgt gaaaatggag     300
cctcaagaaa gtgaagaagg caatgtctct gggcatggtg tgctgggcag tgatgtcttc     360
gaggagccta tgtcaggcat gagtgaagct gggattcctc agagccctga tgactcagat     420
agcagctatg gttcccactc cactgacagc ctcatggggt cctcccctgt tttcaaccag     480
cgctgcaaga agaggatgag gaaaatataa                                      510


Met Leu Gln Ile Ser Lys Gln Leu Ser Glu Glu Tyr Glu Arg Ile Val
 1               5                  10                  15
Asn Pro Glu Lys Ala Thr Glu Asp Ala Lys Pro Val Lys Ile Lys Glu
            20                  25                  30
Glu Pro Val Ser Asp Ile Thr Phe Pro Val Ser Glu Glu Leu Glu Ala
        35                  40                  45
Asp Leu Ala Ser Gly Asp Gln Ser Leu Pro Met Gly Val Leu Gly Ala
    50                  55                  60
Gln Ser Glu Arg Phe Pro Ser Asn Leu Glu Val Glu Ala Ser Pro Gln
65                  70                  75                  80
Ala Ser Ser Ala Glu Val Asn Ala Ser Pro Leu Trp Asn Leu Ala His
                85                  90                  95
Val Lys Met Glu Pro Gln Glu Ser Glu Glu Gly Asn Val Ser Gly His
            100                 105                 110
Gly Val Leu Gly Ser Asp Val Phe Glu Glu Pro Met Ser Gly Met Ser
        115                 120                 125
Glu Ala Gly Ile Pro Gln Ser Pro Asp Asp Ser Asp Ser Ser Tyr Gly
    130                 135                 140
Ser His Ser Thr Asp Ser Leu Met Gly Ser Ser Pro Val Phe Asn Gln
145                 150                 155                 160
Arg Cys Lys Lys Arg Met Arg Lys Ile
                165
```

FIG.6K

```
atgaaaggat tgtcaatcct gagaaggcca cagaggacgc taaacctgtg a                51

Met Lys Gly Leu Ser Ile Leu Arg Arg Pro Gln Arg Thr Leu Asn Leu
 1               5                  10                  15
```

FIG.6L

```
atgggagtgc ttggggctca gagcgaacgc ttcccatcta acctggaggt tgaagcttca       60
ccacaggctt caagtgcaga ggtaaatgct tctcctcttt ggaatctggc ccatgtgaaa      120
atggagcctc aagaaagtga agaaggcaat gtctctgggc atggtgtgct gggcagtgat      180
gtcttcgagg agcctatgtc aggcatgagt gaagctggga ttcctcagag ccctgatgac      240
tcagatagca gctatggttc ccactccact gacagcctca tggggtcctc ccctgttttc      300
aaccagcgct gcaagaagag gatgaggaaa atataa                                336

Met Gly Val Leu Gly Ala Gln Ser Glu Arg Phe Pro Ser Asn Leu Glu
 1               5                  10                  15
Val Glu Ala Ser Pro Gln Ala Ser Ser Ala Glu Val Asn Ala Ser Pro
            20                  25                  30
Leu Trp Asn Leu Ala His Val Lys Met Glu Pro Gln Glu Ser Glu Glu
        35                  40                  45
Gly Asn Val Ser Gly His Gly Val Leu Gly Ser Asp Val Phe Glu Glu
    50                  55                  60
Pro Met Ser Gly Met Ser Glu Ala Gly Ile Pro Gln Ser Pro Asp Asp
65                  70                  75                  80
Ser Asp Ser Ser Tyr Gly Ser His Ser Thr Asp Ser Leu Met Gly Ser
                85                  90                  95
Ser Pro Val Phe Asn Gln Arg Cys Lys Lys Arg Met Arg Lys Ile
            100                 105                 110
```

FIG.6M

```
atgcttctcc tctttggaat ctggcccatg tga                                   33

Met Leu Leu Leu Phe Gly Ile Trp Pro Met
 1               5                  10
```

FIG.6N

```
atg gag cct caa gaa agt gaa gaa ggc aat gtc tct ggg cat ggt gtg      48
ctg ggc agt gat gtc ttc gag gag cct atg tca ggc atg agt gaa gct      96
ggg att cct cag agc cct gat gac tca gat agc agc tat ggt tcc cac     144
tcc act gac agc ctc atg ggg tcc tcc cct gtt ttc aac cag cgc tgc     192
aag aag agg atg agg aaa ata taa                                     216

Met Glu Pro Gln Glu Ser Glu Glu Gly Asn Val Ser Gly His Gly Val
 1               5                  10                  15
Leu Gly Ser Asp Val Phe Glu Glu Pro Met Ser Gly Met Ser Glu Ala
            20                  25                  30
Gly Ile Pro Gln Ser Pro Asp Asp Ser Asp Ser Ser Tyr Gly Ser His
        35                  40                  45
Ser Thr Asp Ser Leu Met Gly Ser Ser Pro Val Phe Asn Gln Arg Cys
    50                  55                  60
Lys Lys Arg Met Arg Lys Ile
65                  70
```

FIG.6O

```
atgtctctgg gcatggtgtg ctgggcagtg atgtcttcga ggagcctatg tcaggcatga    60

Met Ser Leu Gly Met Val Cys Trp Ala Val Met Ser Ser Arg Ser Leu
 1               5                  10                  15
Cys Gln Ala
```

FIG.6P

```
atggtgtgct gggcagtgat gtcttcgagg agcctatgtc aggcatga                  48

Met Val Cys Trp Ala Val Met Ser Ser Arg Ser Leu Cys Gln Ala
 1               5                  10                  15
```

FIG 6Q

```
atgtcttcga ggagcctatg tcaggcatga                                     30

Met Ser Ser Arg Ser Leu Cys Gln Ala
 1               5
```

FIG 6R

```
atgtcaggca tgagtgaagc tgggattcct cagagccctg atgactcaga tagcagctat     60
ggttcccact ccactgacag cctcatgggg tcctcccctg ttttcaacca gcgctgcaag    120
aagaggatga ggaaaatata a                                              141

Met Ser Gly Met Ser Glu Ala Gly Ile Pro Gln Ser Pro Asp Asp Ser
 1               5                  10                  15
Asp Ser Ser Tyr Gly Ser His Ser Thr Asp Ser Leu Met Gly Ser Ser
            20                  25                  30
Pro Val Phe Asn Gln Arg Cys Lys Lys Arg Met Arg Lys Ile
        35                  40                  45
```

FIG 6S

```
atgagtgaag ctgggattcc tcagagccct gatgactcag atagcagcta tggttcccac      60
tccactgaca gcctcatggg gtcctcccct gttttcaacc agcgctgcaa gaagaggatg     120
aggaaaatat aa                                                         132

Met Ser Glu Ala Gly Ile Pro Gln Ser Pro Asp Asp Ser Asp Ser Ser
 1               5                  10                  15
Tyr Gly Ser His Ser Thr Asp Ser Leu Met Gly Ser Ser Pro Val Phe
            20                  25                  30
Asn Gln Arg Cys Lys Lys Arg Met Arg Lys Ile
        35                  40
```

FIG.6T

```
atgactcaga tagcagctat ggttcccact ccactgacag cctcatgggg tcctcccctg      60
ttttcaacca gcgctgcaag aagaggatga                                       90

Met Thr Gln Ile Ala Ala Met Val Pro Thr Pro Leu Thr Ala Ser Trp
 1               5                  10                  15
Gly Pro Pro Leu Phe Ser Thr Ser Ala Ala Arg Arg Gly
            20                  25
```

FIG.6U

```
atggttccca ctccactgac agcctcatgg ggtcctcccc tgttttcaac cagcgctgca      60
agaagaggat ga                                                          72

Met Val Pro Thr Pro Leu Thr Ala Ser Trp Gly Pro Pro Leu Phe Ser
 1               5                  10                  15
Thr Ser Ala Ala Arg Arg Gly
            20
```

FIG.6V

```
atggggtcct cccctgtttt caaccagcgc tgcaagaaga ggatgaggaa aatataa          57

Met Gly Ser Ser Pro Val Phe Asn Gln Arg Cys Lys Lys Arg Met Arg
 1               5                  10                  15
Lys Ile
```

FIG.6W

```
atgaggaaaa tataa                                                       15

Met Arg Lys Ile
 1
```

FIG.6X

```
atgttttgtc cagacctact agacccaaca gaaaaggtta gctga                      45

Met Phe Cys Pro Asp Leu Leu Asp Pro Thr Glu Lys Val Ser
 1               5                  10
```

FIG.6Y

```
atgtattttg ctgagctgta caacaggatg gcacaaaatc ctgctgatag aaataagtgt     60
aaccggccag gcacagtggc tcatgcctgt aatcccagca ttttgggagg cccaggtggg    120
tggatcatct ga                                                       132

Met Tyr Phe Ala Glu Leu Tyr Asn Arg Met Ala Gln Asn Pro Ala Asp
 1               5                  10                  15
Arg Asn Lys Cys Asn Arg Pro Gly Thr Val Ala His Ala Cys Asn Pro
            20                  25                  30
Ser Ile Leu Gly Gly Pro Gly Gly Trp Ile Ile
        35                  40
```

FIG.6Z

```
atggcacaaa atcctgctga tagaaataag tgtaaccggc caggcacagt ggctcatgcc     60
tgtaatccca gcattttggg aggcccaggt gggtggatca tctga                    105

Met Ala Gln Asn Pro Ala Asp Arg Asn Lys Cys Asn Arg Pro Gly Thr
 1               5                  10                  15
Val Ala His Ala Cys Asn Pro Ser Ile Leu Gly Gly Pro Gly Gly Trp
            20                  25                  30
Ile Ile
```

FIG.6AA

```
atgcctgtaa tcccagcatt ttgggaggcc caggtgggtg gatcatctga ggtcaggagt     60
tcgagaccag cctga                                                     75

Met Pro Val Ile Pro Ala Phe Trp Glu Ala Gln Val Gly Gly Ser Ser
 1               5                  10                  15
Glu Val Arg Ser Ser Arg Pro Ala
            20
```

FIG.6AB

```
atggaaaaaa ccccatctct actaaaaata caaaattag                           39

Met Glu Lys Thr Pro Ser Leu Leu Lys Ile Gln Asn
 1               5                  10
```

FIG.6AC

```
atgcctgtaa tcccagctac tcaggaaggc tga                                 33

Met Pro Val Ile Pro Ala Thr Gln Glu Gly
 1               5                  10
```

FIG.6AD

```
atggatggag gtgtcggtac taaattgaat aacgagtaa                          39

Met Asp Gly Gly Val Gly Thr Lys Leu Asn Asn Glu
 1               5                  10
```

FIG.7A

```
atggaggtgt cggtactaaa ttga                                          24

Met Glu Val Ser Val Leu Asn
 1               5
```

FIG.7B

```
atggcctttg ccaacaaagt gaactgtttt ggttgtttta aactcatgaa gtatgggttc    60
agtggaaatg tttggaactc tgaaggattt agacaaggtt ttgaaaagga taatcatggg   120
ttagaaggaa gtgtttga                                                 138

Met Ala Phe Ala Asn Lys Val Asn Cys Phe Gly Cys Phe Lys Leu Met
 1               5                  10                  15
Lys Tyr Gly Phe Ser Gly Asn Val Trp Asn Ser Glu Gly Phe Arg Gln
            20                  25                  30
Gly Phe Glu Lys Asp Asn His Gly Leu Glu Gly Ser Val
        35                  40                  45
```

FIG.7C

```
atgaagtatg ggttcagtgg aaatgtttgg aactctgaag gatttagaca aggttttgaa    60
aaggataatc atgggttaga aggaagtgtt tga                                93

Met Lys Tyr Gly Phe Ser Gly Asn Val Trp Asn Ser Glu Gly Phe Arg
 1               5                  10                  15
Gln Gly Phe Glu Lys Asp Asn His Gly Leu Glu Gly Ser Val
            20                  25                  30
```

FIG.7D

```
atgggttcag tggaaatgtt tggaactctg aaggatttag acaaggtttt gaaaaggata    60
atcatgggtt ag                                                       72

Met Gly Ser Val Glu Met Phe Gly Thr Leu Lys Asp Leu Asp Lys Val
 1               5                  10                  15
Leu Lys Arg Ile Ile Met Gly
            20
```

FIG.7E

atgtttggaa ctctgaagga tttagacaag gttttgaaaa ggataatcat gggttag 57

Met Phe Gly Thr Leu Lys Asp Leu Asp Lys Val Leu Lys Arg Ile Ile
1 5 10 15

FIG.7F

atggtgaaac cctgtttcta taaaaaataa 30

Met Val Lys Pro Cys Phe Tyr Lys Lys
1 5

FIG.7G

atgcctgtgg tcccagctac tgaggaggct gaggtgggag gattgcttga gcccaggagg 60
cagaggttgc agtga 75

Met Pro Val Val Pro Ala Thr Glu Glu Ala Glu Val Gly Gly Leu Leu
1 5 10 15
Glu Pro Arg Arg Gln Arg Leu Gln
20

FIG.7H

```
atgtgtccca tgtgggttgt gccaggtaga gaaacaggaa gtcaatcatc tgtgacagtc     60
tctattctgt cgttttgctc cttggtattt gatttgcact atatttag                 108

Met Cys Pro Met Trp Val Val Pro Gly Arg Glu Thr Gly Ser Gln Ser
 1               5                  10                  15
Ser Val Thr Val Ser Ile Leu Ser Phe Cys Ser Leu Val Phe Asp Leu
            20                  25                  30
His Tyr Ile
        35
```

FIG.8A

```
atgtgggttg tgccaggtag agaaacagga agtcaatcat ctgtgacagt ctctattctg     60
tcgttttgct ccttggtatt tgatttgcac tatatttag                           99

Met Trp Val Val Pro Gly Arg Glu Thr Gly Ser Gln Ser Ser Val Thr
 1               5                  10                  15
Val Ser Ile Leu Ser Phe Cys Ser Leu Val Phe Asp Leu His Tyr Ile
            20                  25                  30
```

FIG.8B

```
atggagacct ggttcagta a                                               21

Met Glu Thr Trp Phe Gln
 1               5
```

FIG.8C

```
atgtcccacc agtggggtat agaaagcatg ctcatgaccc tgccgtgtcg tctgaggtac     60
ccgttcttat cctag                                                     75

Met Ser His Gln Trp Gly Ile Glu Ser Met Leu Met Thr Leu Pro Cys
 1               5                  10                  15
Arg Leu Arg Tyr Pro Phe Leu Ser
            20
```

FIG.8D

```
atgctcatga ccctgccgtg tcgtctgagg tacccgttct tatcctag                 48

Met Leu Met Thr Leu Pro Cys Arg Leu Arg Tyr Pro Phe Leu Ser
 1               5                  10                  15
```

FIG.8E

atgaccctgc cgtgtcgtct gaggtacccg ttcttatcct ag
42

Met Thr Leu Pro Cys Arg Leu Arg Tyr Pro Phe Leu Ser
1 5 10

FIG.8F

atgttatctc cttgctttgc tttttgccgt tttaaaatgt gtaattgttc cagcattcca 60
atggtcttgt gcatagcagg ggactgtaac caaaaataa 99

Met Leu Ser Pro Cys Phe Ala Phe Cys Arg Phe Lys Met Cys Asn Cys
1 5 10 15
Ser Ser Ile Pro Met Val Leu Cys Ile Ala Gly Asp Cys Asn Gln Lys
20 25 30

FIG.8G

atgtgtaatt gttccagcat tccaatggtc ttgtgcatag caggggactg taaccaaaaa 60
taa 63

Met Cys Asn Cys Ser Ser Ile Pro Met Val Leu Cys Ile Ala Gly Asp
1 5 10 15
Cys Asn Gln Lys
20

FIG.8H

atggtcttgt gcatagcagg ggactgtaac caaaaataa 39

Met Val Leu Cys Ile Ala Gly Asp Cys Asn Gln Lys
1 5 10

FIG.8I

atgtatttgt gtaattggtt tgaagaagtc ttgaatagct ctttactgtc ttacttgggg 60
ttgataagat ttgagtgttt gcaatttttt actaaatgta gctccaaagt cttaaatggc 120
ttgtttgttc ttaaactgtt aattgatgaa actgtgcata agtttacaat gtactaa 177

Met Tyr Leu Cys Asn Trp Phe Glu Glu Val Leu Asn Ser Ser Leu Leu
1 5 10 15
Ser Tyr Leu Gly Leu Ile Arg Phe Glu Cys Leu Gln Phe Phe Thr Lys
20 25 30
Cys Ser Ser Lys Val Leu Asn Gly Leu Phe Val Leu Lys Leu Leu Ile
35 40 45
Asp Glu Thr Val His Lys Phe Thr Met Tyr
50 55

FIG.8J

atggcttgtt tgttcttaaa ctgttaa 27

Met Ala Cys Leu Phe Leu Asn Cys
1 5

FIG.8K

atgaaactgt gcataagttt acaatgtact aacttatttt gcttattata tatagtgttt 60
tattggaaat tgtaa 75

Met Lys Leu Cys Ile Ser Leu Gln Cys Thr Asn Leu Phe Cys Leu Leu
1 5 10 15
Tyr Ile Val Phe Tyr Trp Lys Leu
20

FIG.8L

atgatgaaaa taaagattag tgtttccatt taa 33

Met Met Lys Ile Lys Ile Ser Val Ser Ile
1 5 10

FIG.8M

atgaaaataa agattagtgt ttccatttaa 30

Met Lys Ile Lys Ile Ser Val Ser Ile
1 5

FIG.8N

atgttttatc ctcccataaa aaaaaaaaaa aaaagggcgg cc 42

Met Phe Tyr Pro Pro Ile Lys Lys Lys Lys Lys Arg Ala Ala
1 5 10

FIG.8O

```
atgcccaaaa gaaagccaaa gagaagatct gccaggttgt ctgctatgct tgtgccagtt    60
acaccagagg tgaagcctaa aagaacatca agttcaagga aaatgaagac aaaaagtgat   120
atgatggaag aaaacataga tacaagtgcc caagcagttg ctgaaaccaa gcaagaagca   180
gttgttgaag aagactacaa tgaaaatgct aaaaatggag aagccaaaat tacagaggca   240
ccagcttctg aaaaagaaat tgtggaagta aaagaagaaa atattgaaga tgccacagaa   300
aagggaggag aaaagaaaga agcagtggca gcagaagtaa aaaatgaaga agaagatcag   360
aaagaagatg aagaagatca aaacgaagag aaaggggaag ctggaaaaga agacaaagat   420
gaaaaagggg aagaagatgg aaaagaggat aaaaatggaa atgagaaagg agaagatgca   480
aaagagaaag aagatggaaa aaaaggtgaa gacggaaaag gaaatggaga agatggaaaa   540
gagaaaggag aagatgaaaa agaggaagaa gacagaaaag aaacaggagt tggaaaagag   600
aatgaagatg gaaaagagaa gggagataaa aaagagggga aagatgtaaa agtcaaagaa   660
gatgaaaaag agagagaaga tggaaaagaa gatgaaggtg gaaatgagga agaagctgga   720
aaagagaaag aagatttaaa agaagaggaa gaaggaaaag aggaagatga gatcaaagaa   780
gatgatggaa aaaaagagga gccacagagt attgtttaa                         819
```

```
Met Pro Lys Arg Lys Pro Lys Arg Arg Ser Ala Arg Leu Ser Ala Met
 1               5                  10                  15
Leu Val Pro Val Thr Pro Glu Val Lys Pro Lys Arg Thr Ser Ser Ser
            20                  25                  30
Arg Lys Met Lys Thr Lys Ser Asp Met Met Glu Glu Asn Ile Asp Thr
        35                  40                  45
Ser Ala Gln Ala Val Ala Glu Thr Lys Gln Glu Ala Val Val Glu Glu
    50                  55                  60
Asp Tyr Asn Glu Asn Ala Lys Asn Gly Glu Ala Lys Ile Thr Glu Ala
65                  70                  75                  80
Pro Ala Ser Glu Lys Glu Ile Val Glu Val Lys Glu Glu Asn Ile Glu
                85                  90                  95
Asp Ala Thr Glu Lys Gly Gly Glu Lys Lys Glu Ala Val Ala Ala Glu
            100                 105                 110
Val Lys Asn Glu Glu Glu Asp Gln Lys Glu Asp Glu Glu Asp Gln Asn
        115                 120                 125
Glu Glu Lys Gly Glu Ala Gly Lys Glu Asp Lys Asp Glu Lys Gly Glu
    130                 135                 140
Glu Asp Gly Lys Glu Asp Lys Asn Gly Asn Glu Lys Gly Glu Asp Ala
145                 150                 155                 160
Lys Glu Lys Glu Asp Gly Lys Lys Gly Glu Asp Gly Lys Gly Asn Gly
                165                 170                 175
Glu Asp Gly Lys Glu Lys Gly Glu Asp Glu Lys Glu Glu Glu Asp Arg
            180                 185                 190
Lys Glu Thr Gly Val Gly Lys Glu Asn Glu Asp Gly Lys Glu Lys Gly
        195                 200                 205
```

FIG.9A

```
Asp Lys Lys Glu Gly Lys Asp Val Lys Val Lys Glu Asp Glu Lys Glu
    210                 215                 220
Arg Glu Asp Gly Lys Glu Asp Glu Gly Gly Asn Glu Glu Glu Ala Gly
225                 230                 235                 240
Lys Glu Lys Glu Asp Leu Lys Glu Glu Glu Glu Gly Lys Glu Glu Asp
                245                 250                 255
Glu Ile Lys Glu Asp Asp Gly Lys Lys Glu Glu Pro Gln Ser Ile Val
            260                 265                 270
```

FIG.9A-1

```
atgcttgtgc cagttacacc agaggtgaag cctaaaagaa catcaagttc aaggaaaatg      60
aagacaaaaa gtgatatgat ggaagaaaac atagatacaa gtgcccaagc agttgctgaa     120
accaagcaag aagcagttgt tgaagaagac tacaatgaaa atgctaaaaa tggagaagcc     180
aaaattacag aggcaccagc ttctgaaaaa gaaattgtgg aagtaaaaga agaaaatatt     240
gaagatgcca cagaaaaggg aggagaaaag aaagaagcag tggcagcaga agtaaaaaat     300
gaagaagaag atcagaaaga agatgaagaa gatcaaaacg aagagaaagg ggaagctgga     360
aaagaagaca aagatgaaaa aggggaagaa gatggaaaag aggataaaaa tggaaatgag     420
aaaggagaag atgcaaaaga gaaagaagat ggaaaaaaag gtgaagacgg aaaaggaaat     480
ggagaagatg gaaaagagaa aggagaagat gaaaaagagg aagaagacag aaaagaaaca     540
ggagttggaa aagagaatga agatggaaaa gagaagggag ataaaaaaga ggggaaagat     600
gtaaaagtca aagaagatga aaaagagaga gaagatggaa aagaagatga aggtggaaat     660
gaggaagaag ctggaaaaga gaaagaagat ttaaaagaag aggaagaagg aaaagaggaa     720
gatgagatca aagaagatga tggaaaaaaa gaggagccac agagtattgt ttaa           774
```

```
Met Leu Val Pro Val Thr Pro Glu Val Lys Pro Lys Arg Thr Ser Ser
 1               5                  10                  15
Ser Arg Lys Met Lys Thr Lys Ser Asp Met Met Glu Glu Asn Ile Asp
            20                  25                  30
Thr Ser Ala Gln Ala Val Ala Glu Thr Lys Gln Glu Ala Val Val Glu
        35                  40                  45
Glu Asp Tyr Asn Glu Asn Ala Lys Asn Gly Glu Ala Lys Ile Thr Glu
    50                  55                  60

Ala Pro Ala Ser Glu Lys Glu Ile Val Glu Val Lys Glu Glu Asn Ile
65                  70                  75                  80
Glu Asp Ala Thr Glu Lys Gly Gly Glu Lys Lys Glu Ala Val Ala Ala
                85                  90                  95
Glu Val Lys Asn Glu Glu Glu Asp Gln Lys Glu Asp Glu Glu Asp Gln
            100                 105                 110
Asn Glu Glu Lys Gly Glu Ala Gly Lys Glu Asp Lys Asp Glu Lys Gly
        115                 120                 125
Glu Glu Asp Gly Lys Glu Asp Lys Asn Gly Asn Glu Lys Gly Glu Asp
    130                 135                 140
Ala Lys Glu Lys Glu Asp Gly Lys Lys Gly Glu Asp Gly Lys Gly Asn
145                 150                 155                 160
Gly Glu Asp Gly Lys Glu Lys Gly Glu Asp Glu Lys Glu Glu Glu Asp
                165                 170                 175
Arg Lys Glu Thr Gly Val Gly Lys Glu Asn Glu Asp Gly Lys Glu Lys
            180                 185                 190
Gly Asp Lys Lys Glu Gly Lys Asp Val Lys Val Lys Glu Asp Glu Lys
        195                 200                 205
Glu Arg Glu Asp Gly Lys Glu Asp Glu Gly Gly Asn Glu Glu Glu Ala
    210                 215                 220
Gly Lys Glu Lys Glu Asp Leu Lys Glu Glu Glu Glu Gly Lys Glu Glu
225                 230                 235                 240
Asp Glu Ile Lys Glu Asp Asp Gly Lys Lys Glu Glu Pro Gln Ser Ile
                245                 250                 255
Val
```

FIG.9B

```
atgaagacaa aaagtgatat gatggaagaa aacatagata caagtgccca agcagttgct     60
gaaaccaagc aagaagcagt tgttgaagaa gactacaatg aaaatgctaa aaatggagaa    120
gccaaaatta cagaggcacc agcttctgaa aaagaaattg tggaagtaaa agaagaaaat    180
attgaagatg ccacagaaaa gggaggagaa aagaaagaag cagtggcagc agaagtaaaa    240
aatgaagaag aagatcagaa agaagatgaa gaagatcaaa acgaagagaa aggggaagct    300
ggaaaagaag acaaagatga aaaaggggaa gaagatggaa aagaggataa aaatggaaat    360
gagaaaggag aagatgcaaa agagaaagaa gatggaaaaa aaggtgaaga cggaaaagga    420
aatggagaag atggaaaaga gaaaggagaa gatgaaaaag aggaagaaga cagaaaagaa    480
acaggagttg gaaaagagaa tgaagatgga aaagagaagg gagataaaaa agaggggaaa    540
gatgtaaaag tcaaagaaga tgaaaaagag agagaagatg gaaaagaaga tgaaggtgga    600
aatgaggaag aagctggaaa agagaaagaa gatttaaaag aagaggaaga aggaaaagag    660
gaagatgaga tcaaagaaga tgatggaaaa aaagaggagc cacagagtat tgtttaa       717
```

```
Met Lys Thr Lys Ser Asp Met Met Glu Glu Asn Ile Asp Thr Ser Ala
 1               5                  10                  15
Gln Ala Val Ala Glu Thr Lys Gln Glu Ala Val Val Glu Glu Asp Tyr
            20                  25                  30
Asn Glu Asn Ala Lys Asn Gly Glu Ala Lys Ile Thr Glu Ala Pro Ala
        35                  40                  45
Ser Glu Lys Glu Ile Val Glu Val Lys Glu Glu Asn Ile Glu Asp Ala
    50                  55                  60
Thr Glu Lys Gly Gly Glu Lys Lys Glu Ala Val Ala Ala Glu Val Lys
65                  70                  75                  80
Asn Glu Glu Glu Asp Gln Lys Glu Asp Glu Glu Asp Gln Asn Glu Glu
                85                  90                  95
Lys Gly Glu Ala Gly Lys Glu Asp Lys Asp Glu Lys Gly Glu Glu Asp
            100                 105                 110
Gly Lys Glu Asp Lys Asn Gly Asn Glu Lys Gly Glu Asp Ala Lys Glu
        115                 120                 125
Lys Glu Asp Gly Lys Lys Gly Glu Asp Gly Lys Gly Asn Gly Glu Asp
    130                 135                 140
Gly Lys Glu Lys Gly Glu Asp Glu Lys Glu Glu Glu Asp Arg Lys Glu
145                 150                 155                 160
Thr Gly Val Gly Lys Glu Asn Glu Asp Gly Lys Glu Lys Gly Asp Lys
                165                 170                 175
Lys Glu Gly Lys Asp Val Lys Val Lys Glu Asp Glu Lys Glu Arg Glu
            180                 185                 190
Asp Gly Lys Glu Asp Glu Gly Gly Asn Glu Glu Glu Ala Gly Lys Glu
        195                 200                 205
Lys Glu Asp Leu Lys Glu Glu Glu Glu Gly Lys Glu Glu Asp Glu Ile
    210                 215                 220
Lys Glu Asp Asp Gly Lys Lys Glu Glu Pro Gln Ser Ile Val
225                 230                 235
```

FIG.9C

```
atgatggaag aaaacataga tacaagtgcc caagcagttg ctgaaaccaa gcaagaagca      60
gttgttgaag aagactacaa tgaaaatgct aaaaatggag aagccaaaat tacagaggca     120
ccagcttctg aaaaagaaat tgtggaagta aaagaagaaa atattgaaga tgccacagaa     180
aagggaggag aaaagaaaga agcagtggca gcagaagtaa aaaatgaaga agaagatcag     240
aaagaagatg aagaagatca aaacgaagag aaaggggaag ctggaaaaga agacaaagat     300
gaaaaagggg aagaagatgg aaaagaggat aaaaatggaa atgagaaagg agaagatgca     360
aaagagaaag aagatggaaa aaaaggtgaa gacggaaaag gaaatggaga agatggaaaa     420
gagaaaggag aagatgaaaa agaggaagaa gacagaaaag aaacaggagt tggaaaagag     480
aatgaagatg gaaaagagaa gggagataaa aaagagggga aagatgtaaa agtcaaagaa     540
gatgaaaaag agagagaaga tggaaaagaa gatgaaggtg gaaatgagga agaagctgga     600
aaagagaaag aagatttaaa agaagaggaa gaaggaaaag aggaagatga gatcaaagaa     660
gatgatggaa aaaaagagga gccacagagt attgtttaa                            699
```

```
Met Met Glu Glu Asn Ile Asp Thr Ser Ala Gln Ala Val Ala Glu Thr
 1               5                  10                  15
Lys Gln Glu Ala Val Val Glu Glu Asp Tyr Asn Glu Asn Ala Lys Asn
            20                  25                  30
Gly Glu Ala Lys Ile Thr Glu Ala Pro Ala Ser Glu Lys Glu Ile Val
        35                  40                  45
Glu Val Lys Glu Glu Asn Ile Glu Asp Ala Thr Glu Lys Gly Gly Glu
    50                  55                  60
Lys Lys Glu Ala Val Ala Ala Glu Val Lys Asn Glu Glu Glu Asp Gln
65                  70                  75                  80
Lys Glu Asp Glu Glu Asp Gln Asn Glu Glu Lys Gly Glu Ala Gly Lys
                85                  90                  95
Glu Asp Lys Asp Glu Lys Gly Glu Glu Asp Gly Lys Glu Asp Lys Asn
            100                 105                 110
Gly Asn Glu Lys Gly Glu Asp Ala Lys Glu Lys Glu Asp Gly Lys Lys
        115                 120                 125
Gly Glu Asp Gly Lys Gly Asn Gly Glu Asp Gly Lys Glu Lys Gly Glu
    130                 135                 140
Asp Glu Lys Glu Glu Glu Asp Arg Lys Glu Thr Gly Val Gly Lys Glu
145                 150                 155                 160
Asn Glu Asp Gly Lys Glu Lys Gly Asp Lys Lys Glu Gly Lys Asp Val
                165                 170                 175
Lys Val Lys Glu Asp Glu Lys Glu Arg Glu Asp Gly Lys Glu Asp Glu
            180                 185                 190
Gly Gly Asn Glu Glu Glu Ala Gly Lys Glu Lys Glu Asp Leu Lys Glu
        195                 200                 205
Glu Glu Glu Gly Lys Glu Glu Asp Glu Ile Lys Glu Asp Asp Gly Lys
    210                 215                 220
Lys Glu Glu Pro Gln Ser Ile Val
225                 230
```

FIG.9D

```
atggaagaaa acatagatac aagtgcccaa gcagttgctg aaaccaagca agaagcagtt     60
gttgaagaag actacaatga aaatgctaaa aatggagaag ccaaaattac agaggcacca    120
gcttctgaaa aagaaattgt ggaagtaaaa gaagaaaata ttgaagatgc cacagaaaag    180
ggaggagaaa agaaagaagc agtggcagca gaagtaaaaa atgaagaaga agatcagaaa    240
gaagatgaag aagatcaaaa cgaagagaaa ggggaagctg gaaaagaaga caaagatgaa    300
aaaggggaag aagatggaaa agaggataaa aatggaaatg agaaaggaga agatgcaaaa    360
gagaaagaag atggaaaaaa aggtgaagac ggaaaaggaa atggagaaga tggaaaagag    420
aaaggagaag atgaaaaaga ggaagaagac agaaaagaaa caggagttgg aaaagagaat    480
gaagatggaa aagagaaggg agataaaaaa gaggggaaag atgtaaaagt caaagaagat    540
gaaaaagaga gagaagatgg aaaagaagat gaaggtggaa atgaggaaga agctggaaaa    600
gagaaagaag atttaaaaga agaggaagaa ggaaaagagg aagatgagat caaagaagat    660
gatggaaaaa aagaggagcc acagagtatt gtttaa                               696
```

```
Met Glu Glu Asn Ile Asp Thr Ser Ala Gln Ala Val Ala Glu Thr Lys
 1               5                  10                  15
Gln Glu Ala Val Val Glu Glu Asp Tyr Asn Glu Asn Ala Lys Asn Gly
            20                  25                  30
Glu Ala Lys Ile Thr Glu Ala Pro Ala Ser Glu Lys Glu Ile Val Glu
        35                  40                  45
Val Lys Glu Glu Asn Ile Glu Asp Ala Thr Glu Lys Gly Gly Glu Lys
    50                  55                  60
Lys Glu Ala Val Ala Ala Glu Val Lys Asn Glu Glu Glu Asp Gln Lys
65                  70                  75                  80
Glu Asp Glu Glu Asp Gln Asn Glu Glu Lys Gly Glu Ala Gly Lys Glu
                85                  90                  95
Asp Lys Asp Glu Lys Gly Glu Glu Asp Gly Lys Glu Asp Lys Asn Gly
            100                 105                 110
Asn Glu Lys Gly Glu Asp Ala Lys Glu Lys Glu Asp Gly Lys Lys Gly
        115                 120                 125
Glu Asp Gly Lys Gly Asn Gly Glu Asp Gly Lys Glu Lys Gly Glu Asp
    130                 135                 140
Glu Lys Glu Glu Glu Asp Arg Lys Glu Thr Gly Val Gly Lys Glu Asn
145                 150                 155                 160
Glu Asp Gly Lys Glu Lys Gly Asp Lys Lys Glu Gly Lys Asp Val Lys
                165                 170                 175
Val Lys Glu Asp Glu Lys Glu Arg Glu Asp Gly Lys Glu Asp Glu Gly
            180                 185                 190
Gly Asn Glu Glu Glu Ala Gly Lys Glu Lys Glu Asp Leu Lys Glu Glu
        195                 200                 205
Glu Glu Gly Lys Glu Glu Asp Glu Ile Lys Glu Asp Asp Gly Lys Lys
    210                 215                 220
Glu Glu Pro Gln Ser Ile Val
225                 230
```

FIG.9E

atgaaaatgc taaaaatgga gaagccaaaa ttacagaggc accagcttct gaaaaagaaa 60
ttgtggaagt aa 72

Met Lys Met Leu Lys Met Glu Lys Pro Lys Leu Gln Arg His Gln Leu
1 5 10 15
Leu Lys Lys Lys Leu Trp Lys
20

FIG.9F

atgctaaaaa tggagaagcc aaaattacag aggcaccagc ttctgaaaaa gaaattgtgg 60
aagtaa 66

Met Leu Lys Met Glu Lys Pro Lys Leu Gln Arg His Gln Leu Leu Lys
1 5 10 15
Lys Lys Leu Trp Lys
20

FIG.9G

atggagaagc caaaattaca gaggcaccag cttctgaaaa agaaattgtg gaagtaa 57

Met Glu Lys Pro Lys Leu Gln Arg His Gln Leu Leu Lys Lys Lys Leu
1 5 10 15
Trp Lys

FIG.9H

atgccacaga aaagggagga gaaaagaaag aagcagtggc agcagaagta a 51

Met Pro Gln Lys Arg Glu Glu Lys Arg Lys Lys Gln Trp Gln Gln Lys
1 5 10 15

FIG.9I

```
atgaagaaga agatcagaaa gaagatgaag aagatcaaaa cgaagagaaa ggggaagctg     60
gaaaagaaga caaagatgaa aaaggggaag aagatggaaa agaggataaa aatggaaatg    120
agaaaggaga agatgcaaaa gagaaagaag atggaaaaaa aggtgaagac ggaaaaggaa    180
atggagaaga tggaaaagag aaaggagaag atgaaaaaga ggaagaagac agaaaagaaa    240
caggagttgg aaaagagaat gaagatggaa aagagaaggg agataaaaaa gaggggaaag    300
atgtaa                                                               306
```

```
Met Lys Lys Lys Ile Arg Lys Lys Met Lys Lys Ile Lys Thr Lys Arg
 1               5                  10                  15
Lys Gly Lys Leu Glu Lys Lys Thr Lys Met Lys Lys Gly Lys Lys Met
            20                  25                  30
Glu Lys Arg Ile Lys Met Glu Met Arg Lys Glu Lys Met Gln Lys Arg
        35                  40                  45
Lys Lys Met Glu Lys Lys Val Lys Thr Glu Lys Glu Met Glu Lys Met
    50                  55                  60
Glu Lys Arg Lys Glu Lys Met Lys Lys Arg Lys Lys Thr Glu Lys Lys
65                  70                  75                  80
Gln Glu Leu Glu Lys Arg Met Lys Met Glu Lys Arg Arg Glu Ile Lys
                85                  90                  95
Lys Arg Gly Lys Met
            100
```

FIG.9J

```
atgaagaaga tcaaaacgaa gagaaagggg aagctggaaa agaagacaaa gatgaaaaag     60
gggaagaaga tggaaaagag gataaaaatg gaaatgagaa aggagaagat gcaaaagaga    120
aagaagatgg aaaaaaaggt gaagacggaa aaggaaatgg agaagatgga aaagagaaag    180
gagaagatga aaaagaggaa gaagacagaa aagaaacagg agttggaaaa gagaatgaag    240
atggaaaaga gaagggagat aaaaaagagg ggaaagatgt aa                       282
```

```
Met Lys Lys Ile Lys Thr Lys Arg Lys Gly Lys Leu Glu Lys Lys Thr
 1               5                  10                  15
Lys Met Lys Lys Gly Lys Lys Met Glu Lys Arg Ile Lys Met Glu Met
            20                  25                  30
Arg Lys Glu Lys Met Gln Lys Arg Lys Lys Met Glu Lys Lys Val Lys
        35                  40                  45
Thr Glu Lys Glu Met Glu Lys Met Glu Lys Arg Lys Glu Lys Met Lys
    50                  55                  60
Lys Arg Lys Lys Thr Glu Lys Lys Gln Glu Leu Glu Lys Arg Met Lys
65                  70                  75                  80
Met Glu Lys Arg Arg Glu Ile Lys Lys Arg Gly Lys Met
                85                  90
```

FIG.9K

```
atgaaaaagg ggaagaagat ggaaaagagg ataaaaatgg aaatgagaaa ggagaagatg      60
caaaagagaa agaagatgga aaaaaaggtg aagacggaaa aggaaatgga gaagatggaa     120
aagagaaagg agaagatgaa aaagaggaag aagacagaaa agaaacagga gttggaaaag     180
agaatgaaga tggaaaagag aagggagata aaaaagaggg gaaagatgta a               231

Met Lys Lys Gly Lys Lys Met Glu Lys Arg Ile Lys Met Glu Met Arg
 1               5                  10                  15
Lys Glu Lys Met Gln Lys Arg Lys Lys Met Glu Lys Lys Val Lys Thr
            20                  25                  30
Glu Lys Glu Met Glu Lys Met Glu Lys Arg Lys Glu Lys Met Lys Lys
        35                  40                  45
Arg Lys Lys Thr Glu Lys Lys Gln Glu Leu Glu Lys Arg Met Lys Met
    50                  55                  60
Glu Lys Arg Arg Glu Ile Lys Lys Arg Gly Lys Met
65                  70                  75
```

FIG.9L

```
atggaaaaga ggataaaaat ggaaatgaga aaggagaaga tgcaaaagag aaagaagatg      60
gaaaaaaagg tgaagacgga aaaggaaatg gagaagatgg aaaagagaaa ggagaagatg     120
aaaaagagga agaagacaga aaagaaacag gagttggaaa agagaatgaa gatggaaaag     180
agaagggaga taaaaaagag gggaaagatg taa                                  213

Met Glu Lys Arg Ile Lys Met Glu Met Arg Lys Glu Lys Met Gln Lys
 1               5                  10                  15
Arg Lys Lys Met Glu Lys Lys Val Lys Thr Glu Lys Glu Met Glu Lys
            20                  25                  30
Met Glu Lys Arg Lys Glu Lys Met Lys Lys Arg Lys Lys Thr Glu Lys
        35                  40                  45
Lys Gln Glu Leu Glu Lys Arg Met Lys Met Glu Lys Arg Arg Glu Ile
    50                  55                  60
Lys Lys Arg Gly Lys Met
65                  70
```

FIG.9M

```
atggaaatga gaaaggagaa gatgcaaaag agaaagaaga tggaaaaaaa ggtgaagacg      60
gaaaaggaaa tggagaagat ggaaaaagaga aaggagaaga tgaaaaagag gaagaagaca     120
gaaaagaaac aggagttgga aaagagaatg aagatggaaa agagaaggga gataaaaaag      180
aggggaaaga tgtaa                                                      195

Met Glu Met Arg Lys Glu Lys Met Gln Lys Arg Lys Lys Met Glu Lys
 1               5                  10                  15
Lys Val Lys Thr Glu Lys Glu Met Glu Lys Met Glu Lys Arg Lys Glu
            20                  25                  30
Lys Met Lys Lys Arg Lys Lys Thr Glu Lys Lys Gln Glu Leu Glu Lys
        35                  40                  45
Arg Met Lys Met Glu Lys Arg Arg Glu Ile Lys Lys Arg Gly Lys Met
    50                  55                  60
```

FIG.9N

```
atgagaaagg agaagatgca aaagagaaag aagatggaaa aaaaggtgaa gacggaaaag      60
gaaatggaga agatggaaaa gagaaaggag aagatgaaaa agaggaagaa gacagaaaag     120
aaacaggagt tggaaaagag aatgaagatg gaaaagagaa gggagataaa aaagagggga     180
aagatgtaa                                                            189
```

```
Met Arg Lys Glu Lys Met Gln Lys Arg Lys Lys Met Glu Lys Lys Val
 1               5                  10                  15
Lys Thr Glu Lys Glu Met Glu Lys Met Glu Lys Arg Lys Glu Lys Met
            20                  25                  30
Lys Lys Arg Lys Lys Thr Glu Lys Lys Gln Glu Leu Glu Lys Arg Met
        35                  40                  45
Lys Met Glu Lys Arg Arg Glu Ile Lys Lys Arg Gly Lys Met
    50                  55                  60
```

FIG.9O

```
atgcaaaaga gaaagaagat ggaaaaaaag gtgaagacgg aaaaggaaat ggagaagatg      60
gaaaagagaa aggagaagat gaaaaagagg aagaagacag aaaagaaaca ggagttggaa     120
aagagaatga agatggaaaa gagaagggag ataaaaaaga ggggaaagat gtaa           174
```

```
Met Gln Lys Arg Lys Lys Met Glu Lys Lys Val Lys Thr Glu Lys Glu
 1               5                  10                  15
Met Glu Lys Met Glu Lys Arg Lys Glu Lys Met Lys Lys Arg Lys Lys
            20                  25                  30
Thr Glu Lys Lys Gln Glu Leu Glu Lys Arg Met Lys Met Glu Lys Arg
        35                  40                  45
Arg Glu Ile Lys Lys Arg Gly Lys Met
    50                  55
```

FIG.9P

```
atggaaaaaa aggtgaagac ggaaaaggaa atggagaaga tggaaaagag aaaggagaag      60
atgaaaaaga ggaagaagac agaaaagaaa caggagttgg aaaagagaat gaagatggaa     120
aagagaaggg agataaaaaa gaggggaaag atgtaa                               156
```

```
Met Glu Lys Lys Val Lys Thr Glu Lys Glu Met Glu Lys Met Glu Lys
 1               5                  10                  15
Arg Lys Glu Lys Met Lys Lys Arg Lys Lys Thr Glu Lys Lys Gln Glu
            20                  25                  30
Leu Glu Lys Arg Met Lys Met Glu Lys Arg Arg Glu Ile Lys Lys Arg
        35                  40                  45
Gly Lys Met
    50
```

FIG.9Q

```
atggagaaga tggaaaagag aaaggagaag atgaaaaaga ggaagaagac agaaaagaaa      60
caggagttgg aaaagagaat gaagatggaa aagagaaggg agataaaaaa gaggggaaag      120
atgtaa                                                                 126

Met Glu Lys Met Glu Lys Arg Lys Glu Lys Met Lys Lys Arg Lys Lys
 1               5                  10                  15
Thr Glu Lys Lys Gln Glu Leu Glu Lys Arg Met Lys Met Glu Lys Arg
            20                  25                  30
Arg Glu Ile Lys Lys Arg Gly Lys Met
        35                  40
```

FIG.9R

```
atggaaaaga gaaaggagaa gatgaaaaag aggaagaaga cagaaaagaa acaggagttg      60
gaaaagagaa tgaagatgga aaagagaagg gagataaaaa agaggggaaa gatgtaa          117

Met Glu Lys Arg Lys Glu Lys Met Lys Lys Arg Lys Lys Thr Glu Lys
 1               5                  10                  15
Lys Gln Glu Leu Glu Lys Arg Met Lys Met Glu Lys Arg Arg Glu Ile
            20                  25                  30
Lys Lys Arg Gly Lys Met
        35
```

FIG.9S

```
atgaaaaaga ggaagaagac agaaaagaaa caggagttgg aaaagagaat gaagatggaa      60
aagagaaggg agataaaaaa gaggggaaag atgtaa                                96

Met Lys Lys Arg Lys Lys Thr Glu Lys Lys Gln Glu Leu Glu Lys Arg
 1               5                  10                  15
Met Lys Met Glu Lys Arg Arg Glu Ile Lys Lys Arg Gly Lys Met
            20                  25                  30
```

FIG.9T

```
atgaagatgg aaaagagaag ggagataaaa aagaggggaa agatgtaa                   48

Met Lys Met Glu Lys Arg Arg Glu Ile Lys Lys Arg Gly Lys Met
 1               5                  10                  15
```

FIG.9U

```
atggaaaaga gaagggagat aaaaaagagg ggaaagatgt aa                         42

Met Glu Lys Arg Arg Glu Ile Lys Lys Arg Gly Lys Met
 1               5                  10
```

FIG.9V

atgaaaaaga gagagaagat ggaaaagaag atgaaggtgg aaatgaggaa gaagctggaa 60
aagagaaaga agatttaa 78

Met Lys Lys Arg Glu Lys Met Glu Lys Lys Met Lys Val Glu Met Arg
1 5 10 15
Lys Lys Leu Glu Lys Arg Lys Lys Ile
20 25

FIG.9W

atggaaaaga agatgaaggt ggaaatgagg aagaagctgg aaaagagaaa gaagatttaa 60

Met Glu Lys Lys Met Lys Val Glu Met Arg Lys Lys Leu Glu Lys Arg
1 5 10 15
Lys Lys Ile

FIG.9X

atgaaggtgg aaatgaggaa gaagctggaa aagagaaaga agatttaa 48

Met Lys Val Glu Met Arg Lys Lys Leu Glu Lys Arg Lys Lys Ile
1 5 10 15

FIG.9Y

atgaggaaga agctggaaaa gagaaagaag atttaa 36

Met Arg Lys Lys Leu Glu Lys Arg Lys Lys Ile
1 5 10

FIG.9Z

atgagatcaa agaagatgat ggaaaaaaag aggagccaca gagtattgtt taaaactgcc 60
ctatgtagtt tcataatttg gtaa 84

Met Arg Ser Lys Lys Met Met Glu Lys Lys Arg Ser His Arg Val Leu
1 5 10 15
Phe Lys Thr Ala Leu Cys Ser Phe Ile Ile Trp
20 25

FIG.9AA

atgatggaaa aaaagaggag ccacagagta ttgtttaaaa ctgccctatg tagtttcata 60
atttggtaa 69

Met Met Glu Lys Lys Arg Ser His Arg Val Leu Phe Lys Thr Ala Leu
1 5 10 15
Cys Ser Phe Ile Ile Trp
20

FIG.9AB

atggaaaaaa agaggagcca cagagtattg tttaaaactg ccctatgtag tttcataatt 60
tggtaa 66

Met Glu Lys Lys Arg Ser His Arg Val Leu Phe Lys Thr Ala Leu Cys
1 5 10 15
Ser Phe Ile Ile Trp
20

FIG.9AC

atgtaccttc atgttgtaaa gttaatagag ataaatattt ttatcaaaaa ttttataaac 60
acagcctttc tttag 75

Met Tyr Leu His Val Val Lys Leu Ile Glu Ile Asn Ile Phe Ile Lys
1 5 10 15
Asn Phe Ile Asn Thr Ala Phe Leu
20

FIG.9AD

atgaaacatt tatctataaa ttttgtgatt atagtagtgg aatacataga aaaaaatatg 60
ctttcaactt tgtga 75

Met Lys His Leu Ser Ile Asn Phe Val Ile Ile Val Val Glu Tyr Ile
1 5 10 15
Glu Lys Asn Met Leu Ser Thr Leu
20

FIG.9AE

atgctttcaa ctttgtga 18

Met Leu Ser Thr Leu
1 5

FIG.9AF

atgtcaaatc tttga 15

Met Ser Asn Leu
1

FIG.9AG

atgttaagag ttaaacttat ctttcccaaa tataacttta ttattagctt gggaaaaatg 60
aaattgtatt cccattttta a 81

Met Leu Arg Val Lys Leu Ile Phe Pro Lys Tyr Asn Phe Ile Ile Ser
1 5 10 15
Leu Gly Lys Met Lys Leu Tyr Ser His Phe
20 25

FIG.9AH

atgaaattgt attcccattt ttaa 24

Met Lys Leu Tyr Ser His Phe
1 5

FIG.9AI

atgtttattt cagaagggca gttttga 27

Met Phe Ile Ser Glu Gly Gln Phe
1 5

FIG.9AJ

atgattgtgt tttgttatat cttcaaaaat atagctagtg aaatattgtg cttaattttt 60
ttctattgtg ttattcatga aaatatttaa 90

Met Ile Val Phe Cys Tyr Ile Phe Lys Asn Ile Ala Ser Glu Ile Leu
1 5 10 15
Cys Leu Ile Phe Phe Tyr Cys Val Ile His Glu Asn Ile
20 25

FIG.9AK

atgaaaatat ttaatattca ctga 24

Met Lys Ile Phe Asn Ile His
1 5

FIG.9AL

```
atgccatctg ataaaaaaga atag                                          24

Met Pro Ser Asp Lys Lys Glu
 1               5
```

FIG.10A

```
atggaaagtg ggactgagag ggagtcagca ggcatgctgc ggtggcggtc actccctctg    60
ccactatccc cagggaagga aaggctccgc catttgggaa agtggtttct acgtcactgg   120
acaccggttc tgagcattag tttgagaact cgttcccgaa tgtgctttcc tccctctccc   180
ctgcccacct caagtttaat aaataaggtt gtacttttct tactataa                228

Met Glu Ser Gly Thr Glu Arg Glu Ser Ala Gly Met Leu Arg Trp Arg
 1               5                  10                  15
Ser Leu Pro Leu Pro Leu Ser Pro Gly Lys Glu Arg Leu Arg His Leu
            20                  25                  30
Gly Lys Trp Phe Leu Arg His Trp Thr Pro Val Leu Ser Ile Ser Leu
        35                  40                  45
Arg Thr Arg Ser Arg Met Cys Phe Pro Pro Ser Pro Leu Pro Thr Ser
    50                  55                  60
Ser Leu Ile Asn Lys Val Val Leu Phe Leu Leu
65                  70                  75
```

FIG.10B

```
atgctgcggt ggcggtcact ccctctgcca ctatccccag ggaaggaaag gctccgccat    60
ttgggaaagt ggtttctacg tcactggaca ccggttctga gcattagttt gagaactcgt   120
tcccgaatgt gctttcctcc ctctcccctg cccacctcaa gtttaataaa taaggttgta   180
cttttcttac tataa                                                    195

Met Leu Arg Trp Arg Ser Leu Pro Leu Pro Leu Ser Pro Gly Lys Glu
 1               5                  10                  15
Arg Leu Arg His Leu Gly Lys Trp Phe Leu Arg His Trp Thr Pro Val
            20                  25                  30
Leu Ser Ile Ser Leu Arg Thr Arg Ser Arg Met Cys Phe Pro Pro Ser
        35                  40                  45
Pro Leu Pro Thr Ser Ser Leu Ile Asn Lys Val Val Leu Phe Leu Leu
    50                  55                  60
```

FIG.10C

```
atgtgctttc ctccctctcc cctgcccacc tcaagtttaa taaataaggt tgtacttttc      60
ttactataa                                                              69

Met Cys Phe Pro Pro Ser Pro Leu Pro Thr Ser Ser Leu Ile Asn Lys
 1               5                  10                  15
Val Val Leu Phe Leu Leu
            20
```

FIG.10D

```
atgtctgtaa ctgctgtgca ctgctgtaaa cttgttagag aaaaaaataa cctgcatgtg      60
ggctcctcag ttattgagtt tttgtga                                          87

Met Ser Val Thr Ala Val His Cys Cys Lys Leu Val Arg Glu Lys Asn
 1               5                  10                  15
Asn Leu His Val Gly Ser Ser Val Ile Glu Phe Leu
            20                  25
```

FIG.10E

```
atgtgggctc ctcagttatt gagtttttgt gatcctatct cagtctgggg gggaacattc      60
tcaagaggtg aaatacaaga aagccttttt ttcttggatc ttttcccgag attcaaatct      120
ccgatttccc atttgggggc aagtttttt cttcaccttc aatatgagaa ttcagcgaac       180
ttgaaagaaa aatcatctgt gagttccttc aggttctcac tcatagtcat gatccttcag      240
agggaatatg cactggcgag tttaaagtaa                                       270

Met Trp Ala Pro Gln Leu Leu Ser Phe Cys Asp Pro Ile Ser Val Trp
 1               5                  10                  15
Gly Gly Thr Phe Ser Arg Gly Glu Ile Gln Glu Ser Leu Phe Phe Leu
            20                  25                  30
Asp Leu Phe Pro Arg Phe Lys Ser Pro Ile Ser His Leu Gly Ala Ser
        35                  40                  45
Phe Phe Leu His Leu Gln Tyr Glu Asn Ser Ala Asn Leu Lys Glu Lys
    50                  55                  60
Ser Ser Val Ser Ser Phe Arg Phe Ser Leu Ile Val Met Ile Leu Gln
65                  70                  75                  80
Arg Glu Tyr Ala Leu Ala Ser Leu Lys
                85
```

FIG.10F

```
atgagaattc agcgaacttg a                                                21

Met Arg Ile Gln Arg Thr
 1               5
```

FIG.10G

```
atgatccttc agagggaata tgcactggcg agtttaaagt aa                    42

Met Ile Leu Gln Arg Glu Tyr Ala Leu Ala Ser Leu Lys
 1               5                  10
```

FIG.10H

```
atgcactggc gagtttaa                                               18

Met His Trp Arg Val
 1               5
```

FIG.10I

```
atgatatttg atggtcccaa agtacggcag ctgcaaaaag tagtggaagg aaattgtcta  60
cgtgtcttgg aaaaattagt taggaatttg gatgggtaa                         99

Met Ile Phe Asp Gly Pro Lys Val Arg Gln Leu Gln Lys Val Val Glu
 1               5                  10                  15
Gly Asn Cys Leu Arg Val Leu Glu Lys Leu Val Arg Asn Leu Asp Gly
            20                  25                  30
```

FIG.10J

```
atggtcccaa agtacggcag ctgcaaaaag tag                              33

Met Val Pro Lys Tyr Gly Ser Cys Lys Lys
 1               5                  10
```

FIG.10K

```
atgggtaaaa ggtacccttg ccttactcca tcttattttc ttagcccccc ttga        54

Met Gly Lys Arg Tyr Pro Cys Leu Thr Pro Ser Tyr Phe Leu Ser Pro
 1               5                  10                  15
Leu
```

FIG.10L

```
atgaaaaatt actaa                                                  15

Met Lys Asn Tyr
 1
```

FIG.10M

atgaaactgt gtgtacgtgt ctgtgcgtgc aacataaaaa tacagtag 48

Met Lys Leu Cys Val Arg Val Cys Ala Cys Asn Ile Lys Ile Gln
1 5 10 15

FIG.10N

atgtggtatt aa 12

Met Trp Tyr
1

FIG.10O

```
atggtttatt acccagaact ctttgtctgg gtcagtcaag aaccatttcc aaacaaggac     60
atggagggaa ggcttcctaa gggaagactt cctgtcccaa aggaagtgaa ccgcaagaag    120
aacgatgaga caaacgctgc ctccctgact ccactgggca gcagtgaact ccgctcccca    180
agaatcagtt acctccactt tttttaa                                        207

Met Val Tyr Tyr Pro Glu Leu Phe Val Trp Val Ser Gln Glu Pro Phe
 1               5                  10                  15
Pro Asn Lys Asp Met Glu Gly Arg Leu Pro Lys Gly Arg Leu Pro Val
            20                  25                  30
Pro Lys Glu Val Asn Arg Lys Lys Asn Asp Glu Thr Asn Ala Ala Ser
        35                  40                  45
Leu Thr Pro Leu Gly Ser Ser Glu Leu Arg Ser Pro Arg Ile Ser Tyr
    50                  55                  60
Leu His Phe Phe
65
```

FIG.11A

```
atggagggaa ggcttcctaa gggaagactt cctgtcccaa aggaagtgaa ccgcaagaag     60
aacgatgaga caaacgctgc ctccctgact ccactgggca gcagtgaact ccgctcccca    120
agaatcagtt acctccactt tttttaa                                        147

Met Glu Gly Arg Leu Pro Lys Gly Arg Leu Pro Val Pro Lys Glu Val
 1               5                  10                  15
Asn Arg Lys Lys Asn Asp Glu Thr Asn Ala Ala Ser Leu Thr Pro Leu
            20                  25                  30
Gly Ser Ser Glu Leu Arg Ser Pro Arg Ile Ser Tyr Leu His Phe Phe
        35                  40                  45
```

FIG.11B

```
atgagacaaa cgctgcctcc ctga                                           24

Met Arg Gln Thr Leu Pro Pro
 1               5
```

FIG.11C

```
atggtgtatg ggtattga                                                  18

Met Val Tyr Gly Tyr
 1               5
```

FIG.11D

atgggtattg atgaggtcat ggtatcatat atgggatttt tttctgtgta a 51

Met Gly Ile Asp Glu Val Met Val Ser Tyr Met Gly Phe Phe Ser Val
1 5 10 15

FIG.11E

atgaggtcat ggtatcatat atgggatttt tttctgtgta aatcatcaag tataagaaga 60
aactatggga ctctgagcct tgctttagag aatttacagt ggacaaatag gtgtcatcaa 120
accagttttt aa 132

Met Arg Ser Trp Tyr His Ile Trp Asp Phe Phe Leu Cys Lys Ser Ser
1 5 10 15
Ser Ile Arg Arg Asn Tyr Gly Thr Leu Ser Leu Ala Leu Glu Asn Leu
20 25 30
Gln Trp Thr Asn Arg Cys His Gln Thr Ser Phe
35 40

FIG.11F

atggtatcat atatgggatt tttttctgtg taa 33

Met Val Ser Tyr Met Gly Phe Phe Ser Val
1 5 10

FIG.11G

atgggatttt tttctgtgta a 21

Met Gly Phe Phe Ser Val
1 5

FIG.11H

atgggactct ga 12

Met Gly Leu
1

FIG.11I

```
atgtcttcca caactcaaac tcccaccgcg ctcacacaac cggtccactc ctgccttttc     60
actcacacag ctcccgactg cttcttgcag aggctgagag tccccccccc acctttttt     120
tcatttagat gtaacaaacc tagtagttta tgttcatcaa ttgtctgtat atctctatat     180
tttatccatg tactcttttg a                                              201

Met Ser Ser Thr Thr Gln Thr Pro Thr Ala Leu Thr Gln Pro Val His
 1               5                  10                  15
Ser Cys Leu Phe Thr His Thr Ala Pro Asp Cys Phe Leu Gln Arg Leu
            20                  25                  30
Arg Val Pro Pro Pro Pro Phe Phe Ser Phe Arg Cys Asn Lys Pro Ser
        35                  40                  45
Ser Leu Cys Ser Ser Ile Val Cys Ile Ser Leu Tyr Phe Ile His Val
    50                  55                  60
Leu Phe
65
```

FIG.11J

```
atgttcatca attgtctgta tatctctata ttttatccat gtactctttt gatgtataga     60
agtagtttga aactcattgt ttccttgtgg taa                                  93

Met Phe Ile Asn Cys Leu Tyr Ile Ser Ile Phe Tyr Pro Cys Thr Leu
 1               5                  10                  15
Leu Met Tyr Arg Ser Ser Leu Lys Leu Ile Val Ser Leu Trp
            20                  25                  30
```

FIG.11K

```
atgtactctt ttgatgtata g                                               21

Met Tyr Ser Phe Asp Val
 1               5
```

FIG.11L

```
atgtatagaa gtagtttgaa actcattgtt tccttgtggt aa                        42

Met Tyr Arg Ser Ser Leu Lys Leu Ile Val Ser Leu Trp
 1               5                  10
```

FIG.11M

```
atgctgccac aggacctgag acactga                                         27

Met Leu Pro Gln Asp Leu Arg His
 1               5
```

FIG.11N

```
atgaatggtg ctattttgga ctttcaacat gctccttggc gaggtagctc tgatggagtt     60
atttttttatt tccatgttct aagaaggtgt tggtactctg tttcccttga atgttgttct    120
ctagactgga ttgacttgtt ttccttgtgt cttcagtgtg gctttcttcc tcagtgttgt    180
aggttgagcg aatgctacca gagtgtgaga gaccattgtc tcgttggctg gcgctcacgg    240
acatgcagtc acggtagcgg gagcaatcac aaaactgtaa tttacttacc aaatctcttc    300
ctttccgtag cctcgcctgc ctga                                          324

Met Asn Gly Ala Ile Leu Asp Phe Gln His Ala Pro Trp Arg Gly Ser
 1               5                  10                  15
Ser Asp Gly Val Ile Phe Tyr Phe His Val Leu Arg Arg Cys Trp Tyr
            20                  25                  30
Ser Val Ser Leu Glu Cys Cys Ser Leu Asp Trp Ile Asp Leu Phe Ser
        35                  40                  45
Leu Cys Leu Gln Cys Gly Phe Leu Pro Gln Cys Cys Arg Leu Ser Glu
    50                  55                  60
Cys Tyr Gln Ser Val Arg Asp His Cys Leu Val Gly Trp Arg Ser Arg
65                  70                  75                  80
Thr Cys Ser His Gly Ser Gly Ser Asn His Lys Thr Val Ile Tyr Leu
                85                  90                  95
Pro Asn Leu Phe Leu Ser Val Ala Ser Pro Ala
            100                 105
```

FIG.11O

```
atggtgctat tttggacttt caacatgctc cttggcgagg tagctctgat ggagttattt     60
tttatttcca tgttctaa                                                   78

Met Val Leu Phe Trp Thr Phe Asn Met Leu Leu Gly Glu Val Ala Leu
 1               5                  10                  15
Met Glu Leu Phe Phe Ile Ser Met Phe
            20                  25
```

FIG.11P

```
atgctccttg gcgaggtagc tctgatggag ttatttttta tttccatgtt ctaa            54

Met Leu Leu Gly Glu Val Ala Leu Met Glu Leu Phe Phe Ile Ser Met
 1               5                  10                  15
Phe
```

FIG.11Q

```
atggagttat tttttatttc catgttctaa                                      30

Met Glu Leu Phe Phe Ile Ser Met Phe
 1               5
```

FIG.11R

atgttgttct ctagactgga ttga 24

Met Leu Phe Ser Arg Leu Asp
1 5

FIG.11S

atgctaccag agtgtgagag accattgtct cgttggctgg cgctcacgga catgcagtca 60
cggtag 66

Met Leu Pro Glu Cys Glu Arg Pro Leu Ser Arg Trp Leu Ala Leu Thr
1 5 10 15
Asp Met Gln Ser Arg
20

FIG.11T

atgcagtcac ggtag 15

Met Gln Ser Arg
1

FIG.11U

atgaaaatga cacctttcc aaatattaaa ttggaaaaca aggtctacaa aatcatgata 60
ctttttaa 69

Met Lys Met Thr Pro Phe Pro Asn Ile Lys Leu Glu Asn Lys Val Tyr
1 5 10 15
Lys Ile Met Ile Leu Phe
20

FIG.11V

atgacacctt ttccaaatat taaattggaa aacaaggtct acaaaatcat gatacttttt 60
taa 63

Met Thr Pro Phe Pro Asn Ile Lys Leu Glu Asn Lys Val Tyr Lys Ile
1 5 10 15
Met Ile Leu Phe
20

FIG.11W

atgatacttt tttaa 15

Met Ile Leu Phe
1

FIG.11X

atggataaac aaaaataa 18

Met Asp Lys Gln Lys
1 5

FIG.11Y

atggaatgtt gttgtgttag ccagtctgaa agcccacctt aa 42

Met Glu Cys Cys Cys Val Ser Gln Ser Glu Ser Pro Pro
1 5 10

FIG.11Z

atgttgttgt gttag 15

Met Leu Leu Cys
1

FIG.11AA

atgacgcatg cactgcactt cttcgttttc ttcttgctcc cccattggcc tgagtttctt 60
gtgcattact cctctccctc cttcgttaga ataggtgtat cagctgtgta a 111

Met Thr His Ala Leu His Phe Phe Val Phe Phe Leu Leu Pro His Trp
1 5 10 15
Pro Glu Phe Leu Val His Tyr Ser Ser Pro Ser Phe Val Arg Ile Gly
20 25 30
Val Ser Ala Val
35

FIG.11AB

atgcactgca cttcttcgtt ttcttcttgc tcccccattg gcctgagttt cttgtgcatt 60
actcctctcc ctccttcgtt agaatag 87

Met His Cys Thr Ser Ser Phe Ser Ser Cys Ser Pro Ile Gly Leu Ser
1 5 10 15
Phe Leu Cys Ile Thr Pro Leu Pro Pro Ser Leu Glu
20 25

FIG.11AC

atgcaggctt ttgtaacagt gtga 24

Met Gln Ala Phe Val Thr Val
1 5

FIG.11AD

atgcactcat ga 12

Met His Ser
1

FIG.11AE

atgacaagta cccaatgtat tttagctatt ttagtagtat ttgttcaata a 51

Met Thr Ser Thr Gln Cys Ile Leu Ala Ile Leu Val Val Phe Val Gln
1 5 10 15

FIG.11AF

atgtatttta gctattttag tagtatttgt tcaataaata cgcaagctgt aaggtaa 57

Met Tyr Phe Ser Tyr Phe Ser Ser Ile Cys Ser Ile Asn Thr Gln Ala
1 5 10 15
Val Arg

FIG.11AG

atggaggagc tactcctctg ggaggacaga aattag 36

Met Glu Glu Leu Leu Leu Trp Glu Asp Arg Asn
1 5 10

FIG.12A

atgaaaccat tgagtttgtg ccttgtatca gaaagcaaag gagaatga 48

Met Lys Pro Leu Ser Leu Cys Leu Val Ser Glu Ser Lys Gly Glu
1 5 10 15

FIG.12B

atgaaaaagc acagctaa 18

Met Lys Lys His Ser
1 5

FIG.12C

atgggtatcc cgaggactaa tgagttttgt gggaagatca taagtaatga agttcttcac 60
tga 63

Met Gly Ile Pro Arg Thr Asn Glu Phe Cys Gly Lys Ile Ile Ser Asn
1 5 10 15
Glu Val Leu His
20

FIG.12D

atgagttttg tgggaagatc ataa 24

Met Ser Phe Val Gly Arg Ser
1 5

FIG.12E

atgaagttct tcactgattt gaagttgcgg ggacacaaaa attgtcattg a 51

Met Lys Phe Phe Thr Asp Leu Lys Leu Arg Gly His Lys Asn Cys His
1 5 10 15

FIG.12F

```
atggttatgc tcttttccac cgtctttgct tcagtttcaa acttggatct ccggtatgga     60
ggggactatg attcttttgc agatgttgta caaaaattct ttgaatcact gtttgcttgt    120
aatatatgcc catatgttgt attagatgga ggatgtgaca tttcagataa aaagcttaca    180
actttaaagg atagagctag agagaagatc cagatggccc attccctttc tgttggtggg    240
agtgggtatg tatgtccctt actcatccgg gaagtattca tacaggtttt gatcaagctg    300
cgggtgtgtt ttgtccagtg cttttcagaa gcagatcggg acattatgac acttgctaac    360
cattggaatt gccctgtgtt atcatcagat agtgactttt gcatttttga cctgaaaact    420
gggttttgcc cattgaatag ctttcagtgg agaaatatga acactattaa gggcacacaa    480
aactatatcc ctgccaaatg cttttccctt gatgcattct gccatcactt cagcaatatg    540
aataaagctc tactacctct ctttgcggtg ctatgtggaa atgaccatgt taatctaccc    600
atcatggaga cattcttaag taaagcgcgt cttcctcttg gagctaccag ttctaaaggg    660
aggagacacc accgaatcct gggacttctg aattggttgt ctcattttgc caaccctacc    720
gaagcactag ataatgttct gaaatacctc ccaaaaaagg atcgagaaaa tgttaaggaa    780
cttctctgct gttccatgga agaataccaa cagtcccagg tgaagctaca ggacttcttc    840
cagtgtggta cttatgtctg tccagatgcc ttgaatcttg gtttaccaga atgggtatta    900
gtggctttag ctaaaggcca gctatctcct ttcatcagtg atgctttggt cctaagacgg    960
accattcttc ccacacaggt ggaaaacatg cagcaaccaa atgcccacag aatatctcag   1020
cccatcaggc aaatcatcta tgggcttctt ttaaatgcct caccacatct ggacaagaca   1080
tcctggaatg cattgcctcc tcagcctcta gctttcagtg aagtggaaag gattaataaa   1140
aatatcagaa cctcaatcat tgatgcagta gaactggcca aggatcattc tgacttaagc   1200
agattgactg agctctcctt gaggaggcgg cagatgcttc tgttagaaac cctgaaggtg   1260
aaacagacca ttctggagcc aatccctact tcactgaagt tgcccattgc tgtcagttgc   1320
tactggttgc agcacaccga gaccaaagca aagctacatc atctacaatc cttactgctc   1380
acaatgctag tggggccctt gattgccata atcaacagcc ctggaaatgt ggaccctgta   1440
cccaggcagg ctcagtgtct tgctcctcgc tag                                1473
```

```
Met Val Met Leu Phe Ser Thr Val Phe Ala Ser Val Ser Asn Leu Asp
 1               5                  10                  15
Leu Arg Tyr Gly Gly Asp Tyr Asp Ser Phe Ala Asp Val Val Gln Lys
            20                  25                  30
Phe Phe Glu Ser Leu Phe Ala Cys Asn Ile Cys Pro Tyr Val Val Leu
        35                  40                  45
Asp Gly Gly Cys Asp Ile Ser Asp Lys Lys Leu Thr Thr Leu Lys Asp
    50                  55                  60
Arg Ala Arg Glu Lys Ile Gln Met Ala His Ser Leu Ser Val Gly Gly
65                  70                  75                  80
Ser Gly Tyr Val Cys Pro Leu Leu Ile Arg Glu Val Phe Ile Gln Val
                85                  90                  95
Leu Ile Lys Leu Arg Val Cys Phe Val Gln Cys Phe Ser Glu Ala Asp
            100                 105                 110
Arg Asp Ile Met Thr Leu Ala Asn His Trp Asn Cys Pro Val Leu Ser
        115                 120                 125
Ser Asp Ser Asp Phe Cys Ile Phe Asp Leu Lys Thr Gly Phe Cys Pro
    130                 135                 140
Leu Asn Ser Phe Gln Trp Arg Asn Met Asn Thr Ile Lys Gly Thr Gln
145                 150                 155                 160
```

FIG.12G

```
Asn Tyr Ile Pro Ala Lys Cys Phe Ser Leu Asp Ala Phe Cys His His
                165                 170                 175
Phe Ser Asn Met Asn Lys Ala Leu Leu Pro Leu Phe Ala Val Leu Cys
            180                 185                 190
Gly Asn Asp His Val Asn Leu Pro Ile Met Glu Thr Phe Leu Ser Lys
        195                 200                 205
Ala Arg Leu Pro Leu Gly Ala Thr Ser Ser Lys Gly Arg Arg His His
    210                 215                 220
Arg Ile Leu Gly Leu Leu Asn Trp Leu Ser His Phe Ala Asn Pro Thr
225                 230                 235                 240
Glu Ala Leu Asp Asn Val Leu Lys Tyr Leu Pro Lys Lys Asp Arg Glu
                245                 250                 255
Asn Val Lys Glu Leu Leu Cys Cys Ser Met Glu Glu Tyr Gln Gln Ser
            260                 265                 270
Gln Val Lys Leu Gln Asp Phe Phe Gln Cys Gly Thr Tyr Val Cys Pro
        275                 280                 285
Asp Ala Leu Asn Leu Gly Leu Pro Glu Trp Val Leu Val Ala Leu Ala
    290                 295                 300
Lys Gly Gln Leu Ser Pro Phe Ile Ser Asp Ala Leu Val Leu Arg Arg
305                 310                 315                 320
Thr Ile Leu Pro Thr Gln Val Glu Asn Met Gln Gln Pro Asn Ala His
                325                 330                 335
Arg Ile Ser Gln Pro Ile Arg Gln Ile Ile Tyr Gly Leu Leu Leu Asn
            340                 345                 350
Ala Ser Pro His Leu Asp Lys Thr Ser Trp Asn Ala Leu Pro Pro Gln
        355                 360                 365
Pro Leu Ala Phe Ser Glu Val Glu Arg Ile Asn Lys Asn Ile Arg Thr
    370                 375                 380
Ser Ile Ile Asp Ala Val Glu Leu Ala Lys Asp His Ser Asp Leu Ser
385                 390                 395                 400
Arg Leu Thr Glu Leu Ser Leu Arg Arg Arg Gln Met Leu Leu Leu Glu
                405                 410                 415
Thr Leu Lys Val Lys Gln Thr Ile Leu Glu Pro Ile Pro Thr Ser Leu
            420                 425                 430
Lys Leu Pro Ile Ala Val Ser Cys Tyr Trp Leu Gln His Thr Glu Thr
        435                 440                 445
Lys Ala Lys Leu His His Leu Gln Ser Leu Leu Leu Thr Met Leu Val
    450                 455                 460
Gly Pro Leu Ile Ala Ile Ile Asn Ser Pro Gly Asn Val Asp Pro Val
465                 470                 475                 480
Pro Arg Gln Ala Gln Cys Leu Ala Pro Arg
                485                 490
```

FIG. 12G-1

<210> 374
<211> 1467
<212> DNA
<213> Homo sapiens

<400> 374
atgctctttt ccaccgtctt tgcttcagtt tcaaacttgg atctccggta tggaggggac 60
tatgattctt ttgcagatgt tgtacaaaaa ttctttgaat cactgtttgc ttgtaatata 120
tgcccatatg ttgtattaga tggaggatgt gacatttcag ataaaaagct tacaacttta 180
aaggatagag ctagagagaa gatccagatg gcccattccc tttctgttgg tgggagtggg 240
tatgtatgtc ccttactcat ccgggaagta ttcatacagg ttttgatcaa gctgcgggtg 300
tgttttgtcc agtgcttttc agaagcagat cgggacatta tgacacttgc taaccattgg 360
aattgccctg tgttatcatc agatagtgac ttttgcattt ttgacctgaa aactgggttt 420
tgcccattga atagctttca gtggagaaat atgaacacta ttaagggcac acaaaactat 480
atccctgcca aatgcttttc ccttgatgca ttctgccatc acttcagcaa tatgaataaa 540
gctctactac ctctctttgc ggtgctatgt ggaaatgacc atgttaatct acccatcatg 600
gagacattct taagtaaagc gcgtcttcct cttggagcta ccagttctaa agggaggaga 660
caccaccgaa tcctgggact tctgaattgg ttgtctcatt ttgccaaccc taccgaagca 720
ctagataatg ttctgaaata cctcccaaaa aaggatcgag aaaatgttaa ggaacttctc 780
tgctgttcca tggaagaata ccaacagtcc caggtgaagc tacaggactt cttccagtgt 840
ggtacttatg tctgtccaga tgccttgaat cttggtttac cagaatgggt attagtggct 900
ttagctaaag gccagctatc tcctttcatc agtgatgctt tggtcctaag acggaccatt 960
cttcccacac aggtggaaaa catgcagcaa ccaaatgccc acagaatatc tcagcccatc 1020
aggcaaatca tctatgggct tcttttaaat gcctcaccac atctggacaa gacatcctgg 1080
aatgcattgc ctcctcagcc tctagctttc agtgaagtgg aaaggattaa taaaaatatc 1140
agaacctcaa tcattgatgc agtagaactg gccaaggatc attctgactt aagcagattg 1200
actgagctct ccttgaggag gcggcagatg cttctgttag aaaccctgaa ggtgaaacag 1260
accattctgg agccaatccc tacttcactg aagttgccca ttgctgtcag ttgctactgg 1320
ttgcagcaca ccgagaccaa agcaaagcta catcatctac aatccttact gctcacaatg 1380
ctagtggggc ccttgattgc cataatcaac agccctggaa atgtggaccc tgtacccagg 1440
caggctcagt gtcttgctcc tcgctag 1467

<210> 375
<211> 488
<212> PRT
<213> Homo sapiens

<400> 375
Met Leu Phe Ser Thr Val Phe Ala Ser Val Ser Asn Leu Asp Leu Arg
1 5 10 15
Tyr Gly Gly Asp Tyr Asp Ser Phe Ala Asp Val Val Gln Lys Phe Phe
20 25 30
Glu Ser Leu Phe Ala Cys Asn Ile Cys Pro Tyr Val Val Leu Asp Gly
35 40 45
Gly Cys Asp Ile Ser Asp Lys Lys Leu Thr Thr Leu Lys Asp Arg Ala
50 55 60
Arg Glu Lys Ile Gln Met Ala His Ser Leu Ser Val Gly Gly Ser Gly
65 70 75 80
Tyr Val Cys Pro Leu Leu Ile Arg Glu Val Phe Ile Gln Val Leu Ile
85 90 95
Lys Leu Arg Val Cys Phe Val Gln Cys Phe Ser Glu Ala Asp Arg Asp
100 105 110
Ile Met Thr Leu Ala Asn His Trp Asn Cys Pro Val Leu Ser Ser Asp
115 120 125
Ser Asp Phe Cys Ile Phe Asp Leu Lys Thr Gly Phe Cys Pro Leu Asn
130 135 140
Ser Phe Gln Trp Arg Asn Met Asn Thr Ile Lys Gly Thr Gln Asn Tyr
145 150 155 160
Ile Pro Ala Lys Cys Phe Ser Leu Asp Ala Phe Cys His His Phe Ser
165 170 175

FIG. 12H

```
Asn Met Asn Lys Ala Leu Leu Pro Leu Phe Ala Val Leu Cys Gly Asn
            180                 185                 190
Asp His Val Asn Leu Pro Ile Met Glu Thr Phe Leu Ser Lys Ala Arg
        195                 200                 205
Leu Pro Leu Gly Ala Thr Ser Ser Lys Gly Arg Arg His His Arg Ile
    210                 215                 220
Leu Gly Leu Leu Asn Trp Leu Ser His Phe Ala Asn Pro Thr Glu Ala
225                 230                 235                 240
Leu Asp Asn Val Leu Lys Tyr Leu Pro Lys Lys Asp Arg Glu Asn Val
                245                 250                 255
Lys Glu Leu Leu Cys Cys Ser Met Glu Glu Tyr Gln Gln Ser Gln Val
            260                 265                 270
Lys Leu Gln Asp Phe Phe Gln Cys Gly Thr Tyr Val Cys Pro Asp Ala
        275                 280                 285
Leu Asn Leu Gly Leu Pro Glu Trp Val Leu Val Ala Leu Ala Lys Gly
    290                 295                 300
Gln Leu Ser Pro Phe Ile Ser Asp Ala Leu Val Leu Arg Arg Thr Ile
305                 310                 315                 320
Leu Pro Thr Gln Val Glu Asn Met Gln Gln Pro Asn Ala His Arg Ile
                325                 330                 335
Ser Gln Pro Ile Arg Gln Ile Ile Tyr Gly Leu Leu Leu Asn Ala Ser
            340                 345                 350
Pro His Leu Asp Lys Thr Ser Trp Asn Ala Leu Pro Pro Gln Pro Leu
        355                 360                 365
Ala Phe Ser Glu Val Glu Arg Ile Asn Lys Asn Ile Arg Thr Ser Ile
    370                 375                 380
Ile Asp Ala Val Glu Leu Ala Lys Asp His Ser Asp Leu Ser Arg Leu
385                 390                 395                 400
Thr Glu Leu Ser Leu Arg Arg Arg Gln Met Leu Leu Leu Glu Thr Leu
                405                 410                 415
Lys Val Lys Gln Thr Ile Leu Glu Pro Ile Pro Thr Ser Leu Lys Leu
            420                 425                 430
Pro Ile Ala Val Ser Cys Tyr Trp Leu Gln His Thr Glu Thr Lys Ala
        435                 440                 445
Lys Leu His His Leu Gln Ser Leu Leu Leu Thr Met Leu Val Gly Pro
    450                 455                 460
Leu Ile Ala Ile Ile Asn Ser Pro Gly Asn Val Asp Pro Val Pro Arg
465                 470                 475                 480
Gln Ala Gln Cys Leu Ala Pro Arg
                485
```

FIG.12H-1

atggagggga ctatgattct tttgcagatg ttgtacaaaa attctttgaa tcactgtttg 60

cttgtaatat atgcccatat gttgtattag 90

Met Glu Gly Thr Met Ile Leu Leu Gln Met Leu Tyr Lys Asn Ser Leu
1 5 10 15
Asn His Cys Leu Leu Val Ile Tyr Ala His Met Leu Tyr
20 25

FIG.12I

atgattcttt tgcagatgtt gtacaaaaat tctttgaatc actgtttgct tgtaatatat 60
gcccatatgt tgtattag 78

Met Ile Leu Leu Gln Met Leu Tyr Lys Asn Ser Leu Asn His Cys Leu
1 5 10 15
Leu Val Ile Tyr Ala His Met Leu Tyr
20 25

FIG.12J

atgttgtaca aaaattcttt gaatcactgt ttgcttgtaa tatatgccca tatgttgtat 60
tag 63

Met Leu Tyr Lys Asn Ser Leu Asn His Cys Leu Leu Val Ile Tyr Ala
1 5 10 15
His Met Leu Tyr
20

FIG.12K

atgcccatat gttgtattag atggaggatg tga 33

Met Pro Ile Cys Cys Ile Arg Trp Arg Met
1 5 10

FIG.12L

atgttgtatt ag 12

Met Leu Tyr
1

FIG.12M

atggaggatg tgacatttca gataaaaagc ttacaacttt aa 42

Met Glu Asp Val Thr Phe Gln Ile Lys Ser Leu Gln Leu
1 5 10

FIG.12N

```
atggcccatt ccctttctgt tggtgggagt gggtatgtat gtcccttact catccgggaa    60
gtattcatac aggttttgat caagctgcgg gtgtgttttg tccagtgctt ttcagaagca   120
gatcgggaca ttatgacact tgctaaccat tggaattgcc ctgtgttatc atcagatagt   180
gacttttgca tttttgacct gaaaactggg ttttgcccat tgaatagctt tcagtggaga   240
aatatgaaca ctattaaggg cacacaaaac tatatccctg ccaaatgctt ttcccttgat   300
gcattctgcc atcacttcag caatatgaat aaagctctac tacctctctt tgcggtgcta   360
tgtggaaatg accatgttaa tctacccatc atggagacat tcttaagtaa agcgcgtctt   420
cctcttggag ctaccagttc taaagggagg agacaccacc gaatcctggg acttctgaat   480
tggttgtctc attttgccaa ccctaccgaa gcactagata atgttctgaa atacctccca   540
aaaaaggatc gagaaaatgt taaggaactt ctctgctgtt ccatggaaga ataccaacag   600
tcccaggtga agctacagga cttcttccag tgtggtactt atgtctgtcc agatgccttg   660
aatcttggtt taccagaatg ggtattagtg gctttagcta aaggccagct atctcctttc   720
atcagtgatg ctttggtcct aagacggacc attcttccca cacaggtgga aaacatgcag   780
caaccaaatg cccacagaat atctcagccc atcaggcaaa tcatctatgg gcttctttta   840
aatgcctcac cacatctgga caagacatcc tggaatgcat tgcctcctca gcctctagct   900
ttcagtgaag tggaaaggat taataaaaat atcagaacct caatcattga tgcagtagaa   960
ctggccaagg atcattctga cttaagcaga ttgactgagc tctccttgag gaggcggcag  1020
atgcttctgt tagaaaccct gaaggtgaaa cagaccattc tggagccaat ccctacttca  1080
ctgaagttgc ccattgctgt cagttgctac tggttgcagc acaccgagac caaagcaaag  1140
ctacatcatc tacaatcctt actgctcaca atgctagtgg ggcccttgat tgccataatc  1200
aacagccctg gaaatgtgga ccctgtaccc aggcaggctc agtgtcttgc tcctcgctag  1260
```

```
Met Ala His Ser Leu Ser Val Gly Gly Ser Gly Tyr Val Cys Pro Leu
 1               5                  10                  15
Leu Ile Arg Glu Val Phe Ile Gln Val Leu Ile Lys Leu Arg Val Cys
            20                  25                  30
Phe Val Gln Cys Phe Ser Glu Ala Asp Arg Asp Ile Met Thr Leu Ala
        35                  40                  45
Asn His Trp Asn Cys Pro Val Leu Ser Ser Asp Ser Asp Phe Cys Ile
    50                  55                  60
Phe Asp Leu Lys Thr Gly Phe Cys Pro Leu Asn Ser Phe Gln Trp Arg
65                  70                  75                  80
Asn Met Asn Thr Ile Lys Gly Thr Gln Asn Tyr Ile Pro Ala Lys Cys
                85                  90                  95
Phe Ser Leu Asp Ala Phe Cys His His Phe Ser Asn Met Asn Lys Ala
            100                 105                 110
Leu Leu Pro Leu Phe Ala Val Leu Cys Gly Asn Asp His Val Asn Leu
        115                 120                 125
Pro Ile Met Glu Thr Phe Leu Ser Lys Ala Arg Leu Pro Leu Gly Ala
    130                 135                 140
Thr Ser Ser Lys Gly Arg Arg His His Arg Ile Leu Gly Leu Leu Asn
145                 150                 155                 160
Trp Leu Ser His Phe Ala Asn Pro Thr Glu Ala Leu Asp Asn Val Leu
                165                 170                 175
Lys Tyr Leu Pro Lys Lys Asp Arg Glu Asn Val Lys Glu Leu Leu Cys
            180                 185                 190
Cys Ser Met Glu Glu Tyr Gln Gln Ser Gln Val Lys Leu Gln Asp Phe
        195                 200                 205
```

FIG.120

```
Phe Gln Cys Gly Thr Tyr Val Cys Pro Asp Ala Leu Asn Leu Gly Leu
    210                 215                 220
Pro Glu Trp Val Leu Val Ala Leu Ala Lys Gly Gln Leu Ser Pro Phe
225                 230                 235                 240
Ile Ser Asp Ala Leu Val Leu Arg Arg Thr Ile Leu Pro Thr Gln Val
                245                 250                 255
Glu Asn Met Gln Gln Pro Asn Ala His Arg Ile Ser Gln Pro Ile Arg
            260                 265                 270
Gln Ile Ile Tyr Gly Leu Leu Leu Asn Ala Ser Pro His Leu Asp Lys
        275                 280                 285
Thr Ser Trp Asn Ala Leu Pro Pro Gln Pro Leu Ala Phe Ser Glu Val
    290                 295                 300
Glu Arg Ile Asn Lys Asn Ile Arg Thr Ser Ile Ile Asp Ala Val Glu
305                 310                 315                 320
Leu Ala Lys Asp His Ser Asp Leu Ser Arg Leu Thr Glu Leu Ser Leu
                325                 330                 335
Arg Arg Arg Gln Met Leu Leu Leu Glu Thr Leu Lys Val Lys Gln Thr
            340                 345                 350
Ile Leu Glu Pro Ile Pro Thr Ser Leu Lys Leu Pro Ile Ala Val Ser
        355                 360                 365
Cys Tyr Trp Leu Gln His Thr Glu Thr Lys Ala Lys Leu His His Leu
    370                 375                 380
Gln Ser Leu Leu Leu Thr Met Leu Val Gly Pro Leu Ile Ala Ile Ile
385                 390                 395                 400
Asn Ser Pro Gly Asn Val Asp Pro Val Pro Arg Gln Ala Gln Cys Leu
                405                 410                 415
Ala Pro Arg
```

FIG.12O-1

```
atgtatgtcc cttactcatc cgggaagtat tcatacaggt tttga                    45

Met Tyr Val Pro Tyr Ser Ser Gly Lys Tyr Ser Tyr Arg Phe
 1               5                  10
```

FIG.12P

```
atgtccctta ctcatccggg aagtattcat acaggttttg atcaagctgc gggtgtgttt    60
tgtccagtgc ttttcagaag cagatcggga cattatgaca cttgctaa                 108

Met Ser Leu Thr His Pro Gly Ser Ile His Thr Gly Phe Asp Gln Ala
 1               5                  10                  15
Ala Gly Val Phe Cys Pro Val Leu Phe Arg Ser Arg Ser Gly His Tyr
            20                  25                  30
Asp Thr Cys
        35
```

FIG.12Q

```
atgacacttg ctaaccattg gaattgccct gtgttatcat cagatagtga cttttgcatt     60
tttgacctga aaactgggtt ttgcccattg aatagctttc agtggagaaa tatgaacact    120
attaagggca cacaaaacta tatccctgcc aaatgctttt cccttgatgc attctgccat    180
cacttcagca atatgaataa agctctacta cctctctttg cggtgctatg tggaaatgac    240
catgttaatc tacccatcat ggagacattc ttaagtaaag cgcgtcttcc tcttggagct    300
accagttcta aagggaggag acaccaccga atcctgggac ttctgaattg gttgtctcat    360
tttgccaacc ctaccgaagc actagataat gttctgaaat acctcccaaa aaaggatcga    420
gaaaatgtta aggaacttct ctgctgttcc atggaagaat accaacagtc ccaggtgaag    480
ctacaggact tcttccagtg tggtacttat gtctgtccag atgccttgaa tcttggttta    540
ccagaatggg tattagtggc tttagctaaa ggccagctat ctcctttcat cagtgatgct    600
ttggtcctaa gacggaccat tcttcccaca caggtggaaa acatgcagca accaaatgcc    660
cacagaatat ctcagcccat caggcaaatc atctatgggc ttcttttaaa tgcctcacca    720
catctggaca agacatcctg gaatgcattg cctcctcagc ctctagcttt cagtgaagtg    780
gaaaggatta ataaaaatat cagaacctca atcattgatg cagtagaact ggccaaggat    840
cattctgact taagcagatt gactgagctc tccttgagga ggcggcagat gcttctgtta    900
gaaaccctga aggtgaaaca gaccattctg gagccaatcc ctacttcact gaagttgccc    960
attgctgtca gttgctactg gttgcagcac accgagacca aagcaaagct acatcatcta   1020
caatccttac tgctcacaat gctagtgggg cccttgattg ccataatcaa cagccctgga   1080
aatgtggacc ctgtacccag gcaggctcag tgtcttgctc ctcgctag                1128
```

```
Met Thr Leu Ala Asn His Trp Asn Cys Pro Val Leu Ser Ser Asp Ser
 1               5                  10                  15
Asp Phe Cys Ile Phe Asp Leu Lys Thr Gly Phe Cys Pro Leu Asn Ser
            20                  25                  30
Phe Gln Trp Arg Asn Met Asn Thr Ile Lys Gly Thr Gln Asn Tyr Ile
        35                  40                  45
Pro Ala Lys Cys Phe Ser Leu Asp Ala Phe Cys His His Phe Ser Asn
    50                  55                  60
Met Asn Lys Ala Leu Leu Pro Leu Phe Ala Val Leu Cys Gly Asn Asp
65                  70                  75                  80
His Val Asn Leu Pro Ile Met Glu Thr Phe Leu Ser Lys Ala Arg Leu
                85                  90                  95
Pro Leu Gly Ala Thr Ser Ser Lys Gly Arg Arg His His Arg Ile Leu
            100                 105                 110
Gly Leu Leu Asn Trp Leu Ser His Phe Ala Asn Pro Thr Glu Ala Leu
        115                 120                 125
Asp Asn Val Leu Lys Tyr Leu Pro Lys Lys Asp Arg Glu Asn Val Lys
    130                 135                 140
Glu Leu Leu Cys Cys Ser Met Glu Glu Tyr Gln Gln Ser Gln Val Lys
145                 150                 155                 160
Leu Gln Asp Phe Phe Gln Cys Gly Thr Tyr Val Cys Pro Asp Ala Leu
                165                 170                 175
Asn Leu Gly Leu Pro Glu Trp Val Leu Val Ala Leu Ala Lys Gly Gln
            180                 185                 190
Leu Ser Pro Phe Ile Ser Asp Ala Leu Val Leu Arg Arg Thr Ile Leu
        195                 200                 205
Pro Thr Gln Val Glu Asn Met Gln Gln Pro Asn Ala His Arg Ile Ser
    210                 215                 220
```

FIG.12R

```
Gln Pro Ile Arg Gln Ile Ile Tyr Gly Leu Leu Leu Asn Ala Ser Pro
225                 230                 235                 240
His Leu Asp Lys Thr Ser Trp Asn Ala Leu Pro Pro Gln Pro Leu Ala
                245                 250                 255
Phe Ser Glu Val Glu Arg Ile Asn Lys Asn Ile Arg Thr Ser Ile Ile
            260                 265                 270
Asp Ala Val Glu Leu Ala Lys Asp His Ser Asp Leu Ser Arg Leu Thr
        275                 280                 285
Glu Leu Ser Leu Arg Arg Arg Gln Met Leu Leu Leu Glu Thr Leu Lys
    290                 295                 300
Val Lys Gln Thr Ile Leu Glu Pro Ile Pro Thr Ser Leu Lys Leu Pro
305                 310                 315                 320
Ile Ala Val Ser Cys Tyr Trp Leu Gln His Thr Glu Thr Lys Ala Lys
                325                 330                 335
Leu His His Leu Gln Ser Leu Leu Leu Thr Met Leu Val Gly Pro Leu
            340                 345                 350
Ile Ala Ile Ile Asn Ser Pro Gly Asn Val Asp Pro Val Pro Arg Gln
        355                 360                 365
Ala Gln Cys Leu Ala Pro Arg
    370                 375
```

FIG.12R-1

```
atgaacacta ttaagggcac acaaaactat atccctgcca aatgcttttc ccttgatgca     60
ttctgccatc acttcagcaa tatgaataaa gctctactac ctctctttgc ggtgctatgt    120
ggaaatgacc atgttaatct acccatcatg gagacattct taagtaaagc gcgtcttcct    180
cttggagcta ccagttctaa agggaggaga caccaccgaa tcctgggact tctgaattgg    240
ttgtctcatt ttgccaaccc taccgaagca ctagataatg ttctgaaata cctcccaaaa    300
aaggatcgag aaaatgttaa ggaacttctc tgctgttcca tggaagaata ccaacagtcc    360
caggtgaagc tacaggactt cttccagtgt ggtacttatg tctgtccaga tgccttgaat    420
cttggtttac cagaatgggt attagtggct ttagctaaag gccagctatc tcctttcatc    480
agtgatgctt tggtcctaag acggaccatt cttcccacac aggtggaaaa catgcagcaa    540
ccaaatgccc acagaatatc tcagcccatc aggcaaatca tctatgggct tcttttaaat    600
gcctcaccac atctggacaa gacatcctgg aatgcattgc ctcctcagcc tctagctttc    660
agtgaagtgg aaaggattaa taaaaatatc agaacctcaa tcattgatgc agtagaactg    720
gccaaggatc attctgactt aagcagattg actgagctct ccttgaggag gcggcagatg    780
cttctgttag aaaccctgaa ggtgaaacag accattctgg agccaatccc tacttcactg    840
aagttgccca ttgctgtcag ttgctactgg ttgcagcaca ccgagaccaa agcaaagcta    900
catcatctac aatccttact gctcacaatg ctagtggggc ccttgattgc cataatcaac    960
agccctggaa atgtggaccc tgtacccagg caggctcagt gtcttgctcc tcgctag      1017
```

FIG.12S

Met Asn Thr Ile Lys Gly Thr Gln Asn Tyr Ile Pro Ala Lys Cys Phe
1 5 10 15
Ser Leu Asp Ala Phe Cys His His Phe Ser Asn Met Asn Lys Ala Leu
20 25 30
Leu Pro Leu Phe Ala Val Leu Cys Gly Asn Asp His Val Asn Leu Pro
35 40 45
Ile Met Glu Thr Phe Leu Ser Lys Ala Arg Leu Pro Leu Gly Ala Thr
50 55 60
Ser Ser Lys Gly Arg Arg His His Arg Ile Leu Gly Leu Leu Asn Trp
65 70 75 80
Leu Ser His Phe Ala Asn Pro Thr Glu Ala Leu Asp Asn Val Leu Lys
85 90 95
Tyr Leu Pro Lys Lys Asp Arg Glu Asn Val Lys Glu Leu Leu Cys Cys
100 105 110
Ser Met Glu Glu Tyr Gln Gln Ser Gln Val Lys Leu Gln Asp Phe Phe
115 120 125
Gln Cys Gly Thr Tyr Val Cys Pro Asp Ala Leu Asn Leu Gly Leu Pro
130 135 140
Glu Trp Val Leu Val Ala Leu Ala Lys Gly Gln Leu Ser Pro Phe Ile
145 150 155 160
Ser Asp Ala Leu Val Leu Arg Arg Thr Ile Leu Pro Thr Gln Val Glu
165 170 175
Asn Met Gln Gln Pro Asn Ala His Arg Ile Ser Gln Pro Ile Arg Gln
180 185 190
Ile Ile Tyr Gly Leu Leu Leu Asn Ala Ser Pro His Leu Asp Lys Thr
195 200 205
Ser Trp Asn Ala Leu Pro Pro Gln Pro Leu Ala Phe Ser Glu Val Glu
210 215 220
Arg Ile Asn Lys Asn Ile Arg Thr Ser Ile Ile Asp Ala Val Glu Leu
225 230 235 240
Ala Lys Asp His Ser Asp Leu Ser Arg Leu Thr Glu Leu Ser Leu Arg
245 250 255
Arg Arg Gln Met Leu Leu Leu Glu Thr Leu Lys Val Lys Gln Thr Ile
260 265 270
Leu Glu Pro Ile Pro Thr Ser Leu Lys Leu Pro Ile Ala Val Ser Cys
275 280 285
Tyr Trp Leu Gln His Thr Glu Thr Lys Ala Lys Leu His His Leu Gln
290 295 300
Ser Leu Leu Leu Thr Met Leu Val Gly Pro Leu Ile Ala Ile Ile Asn
305 310 315 320
Ser Pro Gly Asn Val Asp Pro Val Pro Arg Gln Ala Gln Cys Leu Ala
325 330 335
Pro Arg

FIG.12S-1

atgcttttcc cttga 15

Met Leu Phe Pro
1

FIG.12T

atgcattctg ccatcacttc agcaatatga 30

Met His Ser Ala Ile Thr Ser Ala Ile
1 5

FIG.12U

atgaataaag ctctactacc tctctttgcg gtgctatgtg gaaatgacca tgttaatcta 60
cccatcatgg agacattctt aagtaaagcg cgtcttcctc ttggagctac cagttctaaa 120
gggaggagac accaccgaat cctgggactt ctgaattggt tgtctcattt tgccaaccct 180
accgaagcac tagataatgt tctgaaatac ctcccaaaaa aggatcgaga aaatgttaag 240
gaacttctct gctgttccat ggaagaatac caacagtccc aggtgaagct acaggacttc 300
ttccagtgtg gtacttatgt ctgtccagat gccttgaatc ttggtttacc agaatgggta 360
ttagtggctt tagctaaagg ccagctatct cctttcatca gtgatgcttt ggtcctaaga 420
cggaccattc ttcccacaca ggtggaaaac atgcagcaac caaatgccca cagaatatct 480
cagcccatca ggcaaatcat ctatgggctt cttttaaatg cctcaccaca tctggacaag 540
acatcctgga atgcattgcc tcctcagcct ctagctttca gtgaagtgga aaggattaat 600
aaaaatatca gaacctcaat cattgatgca gtagaactgg ccaaggatca ttctgactta 660
agcagattga ctgagctctc cttgaggagg cggcagatgc ttctgttaga aaccctgaag 720
gtgaaacaga ccattctgga gccaatccct acttcactga agttgcccat tgctgtcagt 780
tgctactggt tgcagcacac cgagaccaaa gcaaagctac atcatctaca atccttactg 840
ctcacaatgc tagtggggcc cttgattgcc ataatcaaca gccctggaaa tgtggaccct 900
gtacccaggc aggctcagtg tcttgctcct cgctag 936

FIG.12V

```
Met Asn Lys Ala Leu Leu Pro Leu Phe Ala Val Leu Cys Gly Asn Asp
 1               5                  10                  15
His Val Asn Leu Pro Ile Met Glu Thr Phe Leu Ser Lys Ala Arg Leu
            20                  25                  30
Pro Leu Gly Ala Thr Ser Ser Lys Gly Arg Arg His His Arg Ile Leu
        35                  40                  45
Gly Leu Leu Asn Trp Leu Ser His Phe Ala Asn Pro Thr Glu Ala Leu
    50                  55                  60
Asp Asn Val Leu Lys Tyr Leu Pro Lys Lys Asp Arg Glu Asn Val Lys
65                  70                  75                  80
Glu Leu Leu Cys Cys Ser Met Glu Glu Tyr Gln Gln Ser Gln Val Lys
                85                  90                  95
Leu Gln Asp Phe Phe Gln Cys Gly Thr Tyr Val Cys Pro Asp Ala Leu
            100                 105                 110
Asn Leu Gly Leu Pro Glu Trp Val Leu Val Ala Leu Ala Lys Gly Gln
        115                 120                 125
Leu Ser Pro Phe Ile Ser Asp Ala Leu Val Leu Arg Arg Thr Ile Leu
    130                 135                 140
Pro Thr Gln Val Glu Asn Met Gln Gln Pro Asn Ala His Arg Ile Ser
145                 150                 155                 160
Gln Pro Ile Arg Gln Ile Ile Tyr Gly Leu Leu Leu Asn Ala Ser Pro
                165                 170                 175
His Leu Asp Lys Thr Ser Trp Asn Ala Leu Pro Pro Gln Pro Leu Ala
            180                 185                 190
Phe Ser Glu Val Glu Arg Ile Asn Lys Asn Ile Arg Thr Ser Ile Ile
        195                 200                 205
Asp Ala Val Glu Leu Ala Lys Asp His Ser Asp Leu Ser Arg Leu Thr
210                 215                 220
Glu Leu Ser Leu Arg Arg Arg Gln Met Leu Leu Leu Glu Thr Leu Lys
225                 230                 235                 240
Val Lys Gln Thr Ile Leu Glu Pro Ile Pro Thr Ser Leu Lys Leu Pro
                245                 250                 255
Ile Ala Val Ser Cys Tyr Trp Leu Gln His Thr Glu Thr Lys Ala Lys
            260                 265                 270
Leu His His Leu Gln Ser Leu Leu Leu Thr Met Leu Val Gly Pro Leu
        275                 280                 285
Ile Ala Ile Ile Asn Ser Pro Gly Asn Val Asp Pro Val Pro Arg Gln
    290                 295                 300
Ala Gln Cys Leu Ala Pro Arg
305                 310
```

FIG.12V-1

atgtggaaat ga 12

Met Trp Lys
1

FIG.12W

atgaccatgt taatctaccc atcatggaga cattcttaa 39

Met Thr Met Leu Ile Tyr Pro Ser Trp Arg His Ser
1 5 10

FIG.12X

atgttaatct acccatcatg gagacattct taa 33

Met Leu Ile Tyr Pro Ser Trp Arg His Ser
1 5 10

FIG.12Y

atggagacat tcttaagtaa agcgcgtctt cctcttggag ctaccagttc taaagggagg 60
agacaccacc gaatcctggg acttctgaat tggttgtctc attttgccaa ccctaccgaa 120
gcactagata atgttctgaa atacctccca aaaaaggatc gagaaaatgt taaggaactt 180
ctctgctgtt ccatggaaga ataccaacag tcccaggtga agctacagga cttcttccag 240
tgtggtactt atgtctgtcc agatgccttg aatcttggtt taccagaatg ggtattagtg 300
gctttagcta aaggccagct atctcctttc atcagtgatg ctttggtcct aagacggacc 360
attcttccca cacaggtgga aaacatgcag caaccaaatg cccacagaat atctcagccc 420
atcaggcaaa tcatctatgg gcttctttta aatgcctcac cacatctgga caagacatcc 480
tggaatgcat tgcctcctca gcctctagct ttcagtgaag tggaaaggat taataaaaat 540
atcagaacct caatcattga tgcagtagaa ctggccaagg atcattctga cttaagcaga 600
ttgactgagc tctccttgag gaggcggcag atgcttctgt tagaaaccct gaaggtgaaa 660
cagaccattc tggagccaat ccctacttca ctgaagttgc ccattgctgt cagttgctac 720
tggttgcagc acaccgagac caaagcaaag ctacatcatc tacaatcctt actgctcaca 780
atgctagtgg ggcccttgat tgccataatc aacagccctg gaaatgtgga ccctgtaccc 840
aggcaggctc agtgtcttgc tcctcgctag 870

FIG.12Z

```
Met Glu Thr Phe Leu Ser Lys Ala Arg Leu Pro Leu Gly Ala Thr Ser
 1               5                  10                  15
Ser Lys Gly Arg Arg His His Arg Ile Leu Gly Leu Leu Asn Trp Leu
            20                  25                  30
Ser His Phe Ala Asn Pro Thr Glu Ala Leu Asp Asn Val Leu Lys Tyr
        35                  40                  45
Leu Pro Lys Lys Asp Arg Glu Asn Val Lys Glu Leu Leu Cys Cys Ser
    50                  55                  60
Met Glu Glu Tyr Gln Gln Ser Gln Val Lys Leu Gln Asp Phe Phe Gln
65                  70                  75                  80
Cys Gly Thr Tyr Val Cys Pro Asp Ala Leu Asn Leu Gly Leu Pro Glu
                85                  90                  95
Trp Val Leu Val Ala Leu Ala Lys Gly Gln Leu Ser Pro Phe Ile Ser
            100                 105                 110
Asp Ala Leu Val Leu Arg Arg Thr Ile Leu Pro Thr Gln Val Glu Asn
        115                 120                 125
Met Gln Gln Pro Asn Ala His Arg Ile Ser Gln Pro Ile Arg Gln Ile
    130                 135                 140
Ile Tyr Gly Leu Leu Leu Asn Ala Ser Pro His Leu Asp Lys Thr Ser
145                 150                 155                 160
Trp Asn Ala Leu Pro Pro Gln Pro Leu Ala Phe Ser Glu Val Glu Arg
                165                 170                 175
Ile Asn Lys Asn Ile Arg Thr Ser Ile Ile Asp Ala Val Glu Leu Ala
            180                 185                 190
Lys Asp His Ser Asp Leu Ser Arg Leu Thr Glu Leu Ser Leu Arg Arg
        195                 200                 205
Arg Gln Met Leu Leu Leu Glu Thr Leu Lys Val Lys Gln Thr Ile Leu
    210                 215                 220
Glu Pro Ile Pro Thr Ser Leu Lys Leu Pro Ile Ala Val Ser Cys Tyr
225                 230                 235                 240
Trp Leu Gln His Thr Glu Thr Lys Ala Lys Leu His His Leu Gln Ser
                245                 250                 255
Leu Leu Leu Thr Met Leu Val Gly Pro Leu Ile Ala Ile Ile Asn Ser
            260                 265                 270
Pro Gly Asn Val Asp Pro Val Pro Arg Gln Ala Gln Cys Leu Ala Pro
        275                 280                 285
Arg
```

FIG.12Z-1

```
atgttaagga acttctctgc tgttccatgg aagaatacca acagtcccag gtga
```

54

```
Met Leu Arg Asn Phe Ser Ala Val Pro Trp Lys Asn Thr Asn Ser Pro
 1               5                  10                  15
Arg
```

FIG.12AA

```
atggaagaat accaacagtc ccaggtgaag ctacaggact tcttccagtg tggtacttat    60
gtctgtccag atgccttgaa tcttggttta ccagaatggg tattagtggc tttagctaaa   120
ggccagctat ctcctttcat cagtgatgct ttggtcctaa gacggaccat tcttcccaca   180
caggtggaaa acatgcagca accaaatgcc cacagaatat ctcagcccat caggcaaatc   240
atctatgggc ttcttttaaa tgcctcacca catctggaca agacatcctg gaatgcattg   300
cctcctcagc ctctagcttt cagtgaagtg gaaaggatta ataaaaatat cagaacctca   360
atcattgatg cagtagaact ggccaaggat cattctgact taagcagatt gactgagctc   420
tccttgagga ggcggcagat gcttctgtta gaaaccctga aggtgaaaca gaccattctg   480
gagccaatcc ctacttcact gaagttgccc attgctgtca gttgctactg gttgcagcac   540
accgagacca aagcaaagct acatcatcta caatccttac tgctcacaat gctagtgggg   600
cccttgattg ccataatcaa cagccctgga aatgtggacc ctgtacccag gcaggctcag   660
tgtcttgctc ctcgctag                                                678
```

```
Met Glu Glu Tyr Gln Gln Ser Gln Val Lys Leu Gln Asp Phe Phe Gln
 1               5                  10                  15
Cys Gly Thr Tyr Val Cys Pro Asp Ala Leu Asn Leu Gly Leu Pro Glu
            20                  25                  30
Trp Val Leu Val Ala Leu Ala Lys Gly Gln Leu Ser Pro Phe Ile Ser
        35                  40                  45
Asp Ala Leu Val Leu Arg Arg Thr Ile Leu Pro Thr Gln Val Glu Asn
    50                  55                  60
Met Gln Gln Pro Asn Ala His Arg Ile Ser Gln Pro Ile Arg Gln Ile
65                  70                  75                  80
Ile Tyr Gly Leu Leu Leu Asn Ala Ser Pro His Leu Asp Lys Thr Ser
                85                  90                  95
Trp Asn Ala Leu Pro Pro Gln Pro Leu Ala Phe Ser Glu Val Glu Arg
            100                 105                 110
Ile Asn Lys Asn Ile Arg Thr Ser Ile Ile Asp Ala Val Glu Leu Ala
        115                 120                 125
Lys Asp His Ser Asp Leu Ser Arg Leu Thr Glu Leu Ser Leu Arg Arg
    130                 135                 140
Arg Gln Met Leu Leu Leu Glu Thr Leu Lys Val Lys Gln Thr Ile Leu
145                 150                 155                 160
Glu Pro Ile Pro Thr Ser Leu Lys Leu Pro Ile Ala Val Ser Cys Tyr
                165                 170                 175
Trp Leu Gln His Thr Glu Thr Lys Ala Lys Leu His His Leu Gln Ser
            180                 185                 190
Leu Leu Leu Thr Met Leu Val Gly Pro Leu Ile Ala Ile Ile Asn Ser
        195                 200                 205
Pro Gly Asn Val Asp Pro Val Pro Arg Gln Ala Gln Cys Leu Ala Pro
    210                 215                 220
Arg
225
```

FIG.12AB

21

atgtctgtcc agatgccttg a

Met Ser Val Gln Met Pro
1 5

FIG.12AC

24

atgggtatta gtggctttag ctaa

Met Gly Ile Ser Gly Phe Ser
1 5

FIG.12AD

15

atgctttggt cctaa
Met Leu Trp Ser
1

FIG.12AE

```
atgcagcaac caaatgccca cagaatatct cagcccatca ggcaaatcat ctatgggctt    60
cttttaaatg cctcaccaca tctggacaag acatcctgga atgcattgcc tcctcagcct   120
ctagctttca gtgaagtgga aaggattaat aaaaatatca gaacctcaat cattgatgca   180
gtagaactgg ccaaggatca ttctgactta agcagattga ctgagctctc cttgaggagg   240
cggcagatgc ttctgttaga aaccctgaag gtgaaacaga ccattctgga gccaatccct   300
acttcactga agttgcccat tgctgtcagt tgctactggt tgcagcacac cgagaccaaa   360
gcaaagctac atcatctaca atccttactg ctcacaatgc tagtggggcc cttgattgcc   420
ataatcaaca gccctggaaa tgtggaccct gtacccaggc aggctcagtg tcttgctcct   480
cgctag                                                              486

Met Gln Gln Pro Asn Ala His Arg Ile Ser Gln Pro Ile Arg Gln Ile
 1               5                  10                  15
Ile Tyr Gly Leu Leu Leu Asn Ala Ser Pro His Leu Asp Lys Thr Ser
            20                  25                  30
Trp Asn Ala Leu Pro Pro Gln Pro Leu Ala Phe Ser Glu Val Glu Arg
        35                  40                  45
Ile Asn Lys Asn Ile Arg Thr Ser Ile Ile Asp Ala Val Glu Leu Ala
    50                  55                  60
Lys Asp His Ser Asp Leu Ser Arg Leu Thr Glu Leu Ser Leu Arg Arg
65                  70                  75                  80
Arg Gln Met Leu Leu Leu Glu Thr Leu Lys Val Lys Gln Thr Ile Leu
                85                  90                  95
Glu Pro Ile Pro Thr Ser Leu Lys Leu Pro Ile Ala Val Ser Cys Tyr
            100                 105                 110
Trp Leu Gln His Thr Glu Thr Lys Ala Lys Leu His His Leu Gln Ser
        115                 120                 125
Leu Leu Leu Thr Met Leu Val Gly Pro Leu Ile Ala Ile Ile Asn Ser
    130                 135                 140
Pro Gly Asn Val Asp Pro Val Pro Arg Gln Ala Gln Cys Leu Ala Pro
145                 150                 155                 160
Arg
```

FIG.12AF

```
atgcccacag aatatctcag cccatcaggc aaatcatcta tgggcttctt ttaa          54

Met Pro Thr Glu Tyr Leu Ser Pro Ser Gly Lys Ser Ser Met Gly Phe
 1               5                  10                  15
Phe
```

FIG.12AG

```
atgggcttct tttaa                                                    15

Met Gly Phe Phe
 1
```

FIG.12AH

```
atgcctcacc acatctggac aagacatcct ggaatgcatt gcctcctcag cctctag          57

Met Pro His His Ile Trp Thr Arg His Pro Gly Met His Cys Leu Leu
 1               5                  10                  15
Ser Leu
```

FIG.12AI

```
atgcattgcc tcctcagcct ctag                                              24

Met His Cys Leu Leu Ser Leu
 1               5
```

FIG.12AJ

```
atgcttctgt tagaaaccct gaaggtgaaa cagaccattc tggagccaat ccctacttca        60
ctgaagttgc ccattgctgt cagttgctac tggttgcagc acaccgagac caaagcaaag       120
ctacatcatc tacaatcctt actgctcaca atgctagtgg ggcccttgat tgccataatc       180
aacagccctg gaaatgtgga ccctgtaccc aggcaggctc agtgtcttgc tcctcgctag       240

Met Leu Leu Leu Glu Thr Leu Lys Val Lys Gln Thr Ile Leu Glu Pro
 1               5                  10                  15
Ile Pro Thr Ser Leu Lys Leu Pro Ile Ala Val Ser Cys Tyr Trp Leu
            20                  25                  30
Gln His Thr Glu Thr Lys Ala Lys Leu His His Leu Gln Ser Leu Leu
        35                  40                  45
Leu Thr Met Leu Val Gly Pro Leu Ile Ala Ile Ile Asn Ser Pro Gly
    50                  55                  60
Asn Val Asp Pro Val Pro Arg Gln Ala Gln Cys Leu Ala Pro Arg
65                  70                  75
```

FIG.12AK

```
atgctagtgg ggcccttgat tgccataatc aacagccctg gaaatgtgga ccctgtaccc        60
aggcaggctc agtgtcttgc tcctcgctag                                        90

Met Leu Val Gly Pro Leu Ile Ala Ile Ile Asn Ser Pro Gly Asn Val
 1               5                  10                  15
Asp Pro Val Pro Arg Gln Ala Gln Cys Leu Ala Pro Arg
            20                  25
```

FIG.12AL

```
atgtggaccc tgtacccagg caggctcagt gtcttgctcc tcgctagttg gtaa              54

Met Trp Thr Leu Tyr Pro Gly Arg Leu Ser Val Leu Leu Leu Ala Ser
 1               5                  10                  15
Trp
```

FIG.12AM

atggtgctaa gatgttgtat gcagagttcc aaagagtga
39

Met Val Leu Arg Cys Cys Met Gln Ser Ser Lys Glu
1 5 10

FIG.12AN

atgttgtatg cagagttcca aagagtgaag gcgcagacac ggctgggcac aagactggac 60
ttagacacag ctcacatctt ctgtcagtgg cagtcctgtc tccagatggg gatgtatctc 120
aaccagctgc tgtccactcc tctcccagag ccagacctaa ctcgactgta cagtggaagc 180
ctggtgcacg gactatgcca gcaactgcta gcatcgacct ctgtagaaag tctcctgagc 240
atatgtcctg aggctaagca actttatgaa tatctattca atgcccacaa ggtcatatgc 300
ccccgctga 309

Met Leu Tyr Ala Glu Phe Gln Arg Val Lys Ala Gln Thr Arg Leu Gly
1 5 10 15
Thr Arg Leu Asp Leu Asp Thr Ala His Ile Phe Cys Gln Trp Gln Ser
20 25 30
Cys Leu Gln Met Gly Met Tyr Leu Asn Gln Leu Leu Ser Thr Pro Leu
35 40 45
Pro Glu Pro Asp Leu Thr Arg Leu Tyr Ser Gly Ser Leu Val His Gly
50 55 60
Leu Cys Gln Gln Leu Leu Ala Ser Thr Ser Val Glu Ser Leu Leu Ser
65 70 75 80
Ile Cys Pro Glu Ala Lys Gln Leu Tyr Glu Tyr Leu Phe Asn Ala His
85 90 95
Lys Val Ile Cys Pro Arg
100

FIG.12AO

atgcagagtt ccaaagagtg a 21

Met Gln Ser Ser Lys Glu
1 5

FIG.12AP

```
atggggatgt atctcaacca gctgctgtcc actcctctcc cagagccaga cctaactcga    60
ctgtacagtg gaagcctggt gcacggacta tgccagcaac tgctagcatc gacctctgta   120
gaaagtctcc tgagcatatg tcctgaggct aagcaacttt atgaatatct attcaatgcc   180
cacaaggtca tatgcccccg ctga                                          204
```

```
Met Gly Met Tyr Leu Asn Gln Leu Leu Ser Thr Pro Leu Pro Glu Pro
 1               5                  10                  15
Asp Leu Thr Arg Leu Tyr Ser Gly Ser Leu Val His Gly Leu Cys Gln
            20                  25                  30
Gln Leu Leu Ala Ser Thr Ser Val Glu Ser Leu Leu Ser Ile Cys Pro
        35                  40                  45
Glu Ala Lys Gln Leu Tyr Glu Tyr Leu Phe Asn Ala His Lys Val Ile
    50                  55                  60
Cys Pro Arg
65
```

FIG. 12AQ

```
atgtatctca accagctgct gtccactcct ctcccagagc cagacctaac tcgactgtac    60
agtggaagcc tggtgcacgg actatgccag caactgctag catcgacctc tgtagaaagt   120
ctcctgagca tatgtcctga ggctaagcaa ctttatgaat atctattcaa tgcccacaag   180
gtcatatgcc cccgctga                                                 198
```

```
Met Tyr Leu Asn Gln Leu Leu Ser Thr Pro Leu Pro Glu Pro Asp Leu
 1               5                  10                  15
Thr Arg Leu Tyr Ser Gly Ser Leu Val His Gly Leu Cys Gln Gln Leu
            20                  25                  30
Leu Ala Ser Thr Ser Val Glu Ser Leu Leu Ser Ile Cys Pro Glu Ala
        35                  40                  45
Lys Gln Leu Tyr Glu Tyr Leu Phe Asn Ala His Lys Val Ile Cys Pro
    50                  55                  60
Arg
65
```

FIG. 12AR

```
atgccagcaa ctgctagcat cgacctctgt agaaagtctc ctgagcatat gtcctga       57
```

```
Met Pro Ala Thr Ala Ser Ile Asp Leu Cys Arg Lys Ser Pro Glu His
 1               5                  10                  15
Met Ser
```

FIG. 12AS

```
atgaatatct attcaatgcc cacaaggtca tatgcccccg ctgaaatatt cctaccaaaa      60
ggtagatcaa attcaaaaaa aaaaaggcag aagaaacaga ataccagctg ttctaagaac     120
agagggagaa ccactgcaca caccaagtgt tggtatgagg gaaacaaccg gtttgggttg     180
ttaatggttg aaaacttaga ggaacatagt gaggcctcca acattgaata a              231

Met Asn Ile Tyr Ser Met Pro Thr Arg Ser Tyr Ala Pro Ala Glu Ile
 1               5                  10                  15
Phe Leu Pro Lys Gly Arg Ser Asn Ser Lys Lys Lys Arg Gln Lys Lys
            20                  25                  30
Gln Asn Thr Ser Cys Ser Lys Asn Arg Gly Arg Thr Thr Ala His Thr
        35                  40                  45
Lys Cys Trp Tyr Glu Gly Asn Asn Arg Phe Gly Leu Leu Met Val Glu
    50                  55                  60
Asn Leu Glu Glu His Ser Glu Ala Ser Asn Ile Glu
65                  70                  75
```

FIG.12AT

```
atgcccacaa ggtcatatgc ccccgctgaa atattcctac caaaaggtag atcaaattca      60
aaaaaaaaaa ggcagaagaa acagaatacc agctgttcta agaacagagg gagaaccact     120
gcacacacca agtgttggta tgagggaaac aaccggtttg ggttgttaat ggttgaaaac     180
ttagaggaac atagtgaggc ctccaacatt gaataa                               216

Met Pro Thr Arg Ser Tyr Ala Pro Ala Glu Ile Phe Leu Pro Lys Gly
 1               5                  10                  15
Arg Ser Asn Ser Lys Lys Lys Arg Gln Lys Lys Gln Asn Thr Ser Cys
            20                  25                  30
Ser Lys Asn Arg Gly Arg Thr Thr Ala His Thr Lys Cys Trp Tyr Glu
        35                  40                  45
Gly Asn Asn Arg Phe Gly Leu Leu Met Val Glu Asn Leu Glu Glu His
    50                  55                  60
Ser Glu Ala Ser Asn Ile Glu
65                  70
```

FIG.12AU

```
atgccccgc tgaaatattc ctaccaaaag gtagatcaaa ttcaaaaaaa aaaaggcaga      60
agaaacagaa taccagctgt tctaagaaca gagggagaac cactgcacac accaagtgtt     120
ggtatgaggg aaacaaccgg tttgggttgt taa                                  153

Met Pro Pro Leu Lys Tyr Ser Tyr Gln Lys Val Asp Gln Ile Gln Lys
 1               5                  10                  15
Lys Lys Gly Arg Arg Asn Arg Ile Pro Ala Val Leu Arg Thr Glu Gly
            20                  25                  30
Glu Pro Leu His Thr Pro Ser Val Gly Met Arg Glu Thr Thr Gly Leu
        35                  40                  45
Gly Cys
    50
```

FIG 12AV

atgagggaaa caaccggttt gggttgttaa 30

Met Arg Glu Thr Thr Gly Leu Gly Cys
1 5

FIG.12AW

atggttgaaa acttagagga acatagtgag gcctccaaca ttgaataa 48

Met Val Glu Asn Leu Glu Glu His Ser Glu Ala Ser Asn Ile Glu
1 5 10 15

FIG.12AX

atgtatttaa tataa 15

Met Tyr Leu Ile
1

FIG.12AY

```
atgcgccccg gccctgcccc ttggccctgc ccctgtcccc gggctgcgtc gggacctgcc    60
agacccccct cccgggtcct gagcccgaac tcccagagct cacccgcggg tgaccggggg   120
ccagcccagg agggcgggtg gtttgtgcga gttcccttgc cacgcggggc cccggcccca   180
tcaagtccct ctggggacgt ccccgtcgga aaccggaaaa agcagttcca gttaattgtg   240
tga                                                                 243
```

```
Met Arg Pro Gly Pro Ala Pro Trp Pro Cys Pro Cys Pro Arg Ala Ala
 1               5                  10                  15
Ser Gly Pro Ala Arg Pro Pro Ser Arg Val Leu Ser Pro Asn Ser Gln
            20                  25                  30
Ser Ser Pro Ala Gly Asp Arg Gly Pro Ala Gln Glu Gly Gly Trp Phe
        35                  40                  45
Val Arg Val Pro Leu Pro Arg Gly Ala Pro Ala Pro Ser Ser Pro Ser
    50                  55                  60
Gly Asp Val Pro Val Gly Asn Arg Lys Lys Gln Phe Gln Leu Ile Val
65                  70                  75                  80
```

FIG.13